

# Carrion Dreams



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A Chronicle of the Human-Vulture Relationship

by Benjamin Joel Wilkinson

# Carrion Dreams 2.0:

## A Chronicle of the Human-Vulture Relationship

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Our intention is to set forth the things which are, as they are.  
–Emperor Frederick II, *On The Art of Hunting With Birds*, 13th century CE  
(Translated by Casey A. Wood and F. Marjorie Fyfe)

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The vulture ranges depicted in the maps of Chapter 1 are modern, accurate to the best of my knowledge as of 2012; those in the remainder of the book are historical (i.e., they depict the vultures' ranges prior to the ecological disruptions of the past couple centuries) unless a given map states otherwise. When drawing historical ranges, I've elected to err on the side of conservatism, and the historical ranges may actually have been larger than the maps indicate.

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# Acknowledgements

Gratitude is due to a number of people and institutions for varying degrees of assistance while completing *Carrion Dreams 2.0*; and it goes without saying that the inclusion of a person or institution in this list in no way implies that they agree with or approve of the contents of this book.

Thanks to, in no particular order:

Risë Robbins, Dan Wilkinson, Ashley Cundiff, Jonelle Seitz, Ruth Stevens, Carlton Wilkinson, the Denver, Jefferson County, Pikes Peak County, and Pueblo County Public Libraries, James P. Dean and the Smithsonian Museum of Natural History, the Denver Museum of Nature and Science and its library, the Field Museum of Chicago, the Denver, Pueblo, and Cheyenne Mountain Zoos, Castlewood Canyon State Park, Grand Canyon and Zion National Parks, Vermillion Cliffs National Monument, [Coalliance.org/Prospector](http://Coalliance.org/Prospector), [FirstSearch](http://FirstSearch) [WorldCat](http://WorldCat), [IUCNRedlist.org](http://IUCNRedlist.org), [Searchable](http://Searchable) [Ornithological](http://Ornithological) [Research](http://Research) [Archive](http://Archive), [Academic](http://Academic) [Search](http://Search) [Premier](http://Premier), [Questia.com](http://Questia.com), [Archive.org](http://Archive.org) and its constituent libraries, [Hathitrust](http://Hathitrust) [Digital](http://Digital) [Library](http://Library), [Ask.com](http://Ask.com), [Google.com](http://Google.com), [Wikipedia.org](http://Wikipedia.org), [The](http://The) [Internet](http://Internet) [Bird](http://Bird) [Collection](http://Collection), and [ARKive.org](http://ARKive.org).

Thanks also to the legions of people whose work was drawn upon in order to write this tome – both those who have fought the good fight by treating the vultures with respect and understanding, *and* those who have done everything in their power to undermine the vultures' collective reputation over the years. Without the ill-considered and frequently laughable statements made by the latter about the carrion birds, their lifestyle, and their relationship with humanity, I never would have developed the impetus to write this book.

# Introduction to *Carrion Dreams 2.0*

We ought not childishly neglect the study of the meaner animals because there is something wonderful in all of Nature. . . . We ought to investigate all sorts of animals because all of them will reveal something of Nature and something of beauty.

-Aristotle, *Parts of Animals*, Book I, Chapter 5

The feeling of sanctity, respect, or even awe with which many . . . viewed birds of great size was rarely extended to the vulture.

-Maggie Oster, *The Illustrated Bird*

Welcome, one and all, to *Carrion Dreams 2.0: A Chronicle of the Human-Vulture Relationship*. The title of this ebook is self-explanatory; everything else about it probably requires a little explanation.

*Carrion Dreams* was written for two purposes. The first is that of chronicling a relationship, one of the most unique, long-standing, and bizarre associations that our species has ever been involved in. We, the naked apes, are a coherent entity in biological terms (though certainly not in cultural terms); a species that by virtue of its intelligence, sociability, adaptability, and opportunism has risen from humble origins to become the defining factor for most life on Earth. The other party in this relationship, the “vulture,” is also very much alive; but in biological terms, it comprises many different entities, and it isn't so much a single being as an idea, or an archetype. It has immense powers of flight, it's always been mysterious in ways beyond number, it's widely considered the most powerful, fearsome, and ominous of birds, and one of the most frightful and yet fascinating animals of any kind; wherever in the world it is encountered, it inspires strong feelings of awe, fear, respect, admiration, or even contempt.

At first glance, these two figures might seem grossly mismatched. One inhabits the earth, and the other the sky; one thrives upon instant gratification, the other is endlessly patient; and one is terrified of death beyond all reason, while the other appears to be intimately familiar with the handiwork of the great leveler. And yet, they've encountered each other in many different situations, from funerals to battles to crowning of royalty to everyday marketplace life, and in many different times and places. This variety is not widely known, much less appreciated; if one were to believe the caricature of this relationship perpetuated by today's popular media, vultures are and always have been nothing but the most despised of birds, reviled around the world and throughout time as ugly, greedy, cowardly, disgusting, and frightening creatures. Over and over again in the course of researching *Carrion Dreams*, I've encountered ludicrous and nonsensical passages that, while presented as objective fact, were clearly penned by authors who steadfastly refused to believe that anyone could ever admire or idolize vultures, for no better reason than that they themselves disdained these birds.

The academic and scientific community is as guilty of this as anyone, and *more* guilty than most. There are many books, articles, and essays with titles like *Animals in* [insert society/culture here] or *The Lore of* [insert animal group here]; and more often than not, vultures are entirely absent from them, even if they fall comfortably within the parameters of the writers' subject matter. (You may hear the voice of bitter and repeated experience in this.) And many people, by accident or design, contribute to the stalinization of vulturine appearances in humanity's ongoing saga by subsuming them within that curious icon of the modern world, the "Eagle." The accepted wisdom of the present



day would have us accept that any and every reference ever made to a benevolent large bird of prey referred exclusively to this partly-real, partly-mythical, largely-fabricated creature, about which there seems to far more information to be found about than about all of the vultures combined. However, well before the end of this book it will become blatantly obvious that vultures have to a great extent been written out of human history, and that the "Eagle" conceived of by the modern world is, in fact, about as much vulture as eagle. One could say that this book was written simply to set the record straight, and to help the vultures reclaim all that was once theirs, and what should be theirs again. That's really all there is to it; *Carrion Dreams* has no ulterior motives to hide, no grand conspiracy theories to expound, nor (despite the sensitivity of some of its topics) any political, religious, national, or ethnic agendas to push. Nothing comes amiss to *Carrion Dreams*, though I daresay some of the information in these pages will likely come amiss to the reader.

When our species, *Homo sapiens*, first emerged on Earth, there were more than thirty species of vulture, the natural ranges of which covered essentially all of Africa and South America and most of Eurasia and North America. Today, there are only twenty-three species left, of which nine are considered endangered and five more are steeply declining; and vultures have been completely extirpated from much of the Old World, and parts of the New as well. Outside of North America and some, mainly protected, parts of Europe and South America, vulture populations are in freefall just about everywhere—most alarmingly in the Indian subcontinent and West Africa, areas that were considered secure strongholds of the birds just two decades ago. The scale of these losses and the diversity of their causes make them difficult to stem or stop; and although no vulture species have yet been lost in the modern era, many local populations have. To describe the outlook for the world's vultures as "bleak" at this point in time would be almost insanely optimistic. This ebook is needed now, if only because the relationship that it chronicles is rapidly falling to pieces in much of the world.

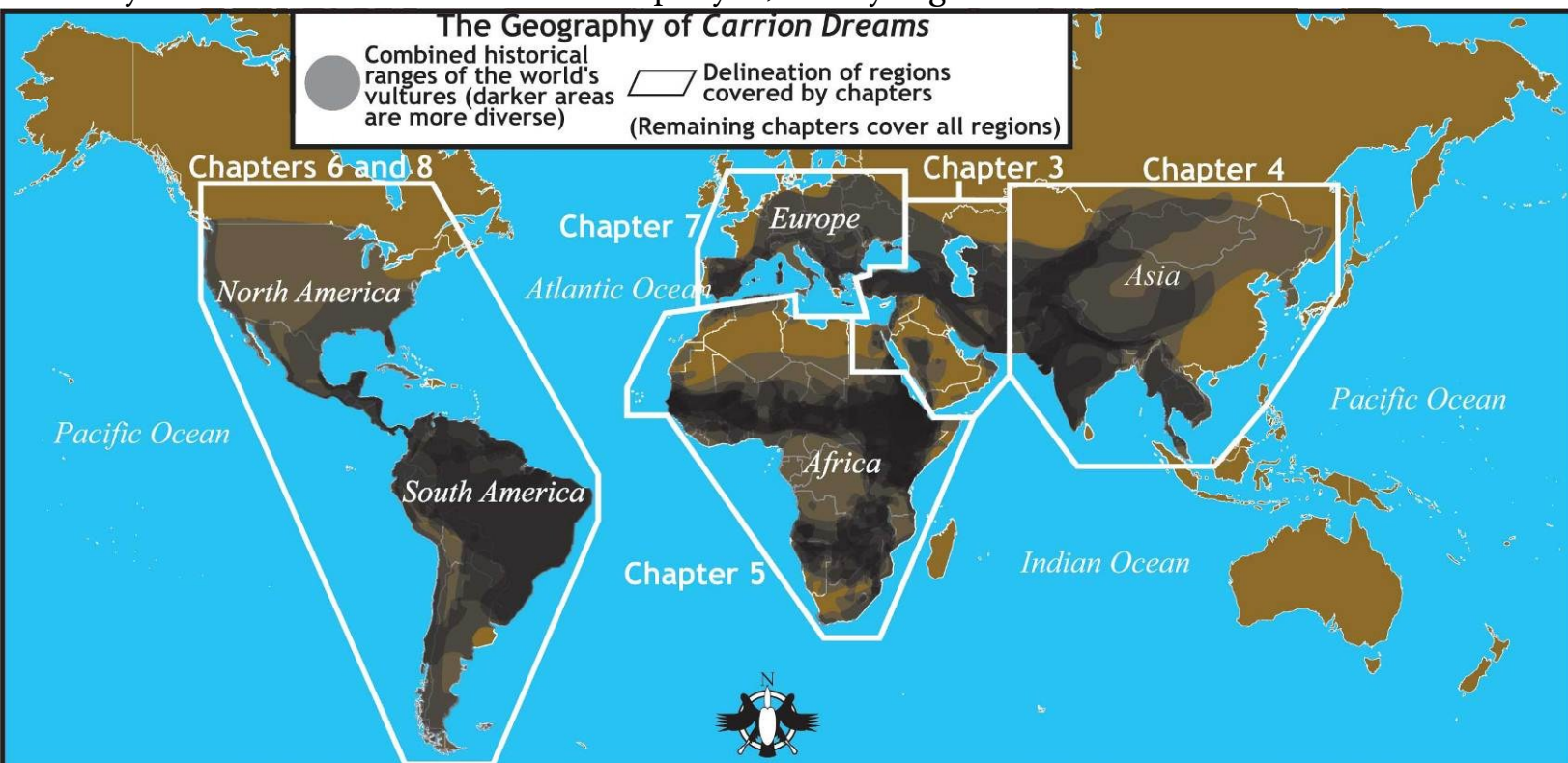
And that's a pity, because whatever one thinks of vultures, the relationship that they share with us is a truly remarkable work of art; arguably the most varied, multifaceted, and complex association that humanity had developed with any animal. Only the vulture has appeared in the guises of gods, epic heroes, symbols of greed and cowardice, *and* means of execution. Only the vulture can embody both earth and sky, eat shit and shatter bones, humiliate the enemy and comfort the bereaved. Only the vulture was the bastard offspring of biological hierarchies in Europe, the gravesite of the common people in Tibet and Mongolia, and the spouse of countless cultural heroes and heroines in the Americas. And only the naked ape could be the vulture's destruction, salvation, captor, liberator, *and* primary source of food all at once. There is humor in this relationship, and inspiration; stories of success, of humans and vultures growing and learning about their world together, and successfully facing down daunting challenges. There are even a few heartwarming tales of interspecific friendship! And there are also true-life tales of people using vultures to torture and execute slaves and prisoners, demean and destroy dead enemies, ridicule other persons' cultures and beliefs; and many, many stories of people killing vultures for the flimsiest of reasons, or often for no reason at all. This ebook would be poorer without any of this; it's intended to be as complete and true a picture of the human-vulture relationship as possible, and that means it must accurately depict the bleaker aspects as well as the beautiful, and the profane as well as the sacred. Simply put, *Carrion Dreams 2.0* is the relationship between the most fearsome mammal and the most feared bird, in all of its violent, disgusting, hypocritical glory.

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*Carrion Dreams* is divided into twelve chapters. [Chapter 1](#), the shortest of the book, provides a whirlwind overview of vultures as living wild animals. Chapters 2 through 8 divide their information based upon both geography and time. [Chapter 2](#) focuses on the relationships that vultures maintained with ancient humans around the world, from the earliest human-like apes of 4 million years ago to the modern people who saw the end of the ice ages 10,000 years ago. [Chapter 3](#) is devoted to the story of vultures in the Near East (the region where Asia and Africa meet), and delves into cultures from ancient Egypt to 20th-century Iran. [Chapter 4](#) is about the vulturine presence in the Far East, the portion of Asia east of the Aral Sea and south of Lake Baikal. [Chapter 5](#) focuses upon the relationship as it developed in sub-Saharan Africa. [Chapter 6](#) details the vulturous history of the pre-Columbian Americas, from the end of the last ice age to the epochal arrival of European explorers in the New World. [Chapter 7](#) describes how vultures fared in association with those same Europeans, from the ancient people of pre-Classical Greek times to the empire-builders of the 20th century. [Chapter 8](#)

tackles the vast subject of vultures in the post-Columbian Americas, from accounts of the earliest European explorers to the curious tale of the California Condor in the Reagan-era United States.

The remaining quarter of the book is divided by topic. [Chapter 9](#) is an overview of the surprisingly strong presence of vultures in modern global culture, including their role in the development of aviation, their supporting roles in television and film, and their starring roles in many urban legends and “big bird” stories. [Chapter 10](#) explains the ancient, strange, and endlessly fascinating association between vultures and warfare. [Chapter 11](#) is an exploration into the minds of both humans and vultures, with an emphasis upon the psychological effects that vultures have had on humanity, and the implications of these for both ape and bird. [Chapter 12](#) takes a hard (and not entirely pessimistic) look at the present and future prospects of vultures in a human-dominated world, and the possibilities that yet await vulture and human as their relationship endures into the 21st century and beyond. The [Endnotes](#) and [Bibliography](#) follow.

And that’s about all the introduction we need. On to . . .

# Chapter 1

## Bald Bird Biology (Breeds Bafflement)

The vulture is the highest-flying of all birds. . . . It depends on nothing and no one, coming and going at will, soaring above the clouds for miles on end, alighting on the highest peaks. It has an imperturbable and strong will to live.

-Pan Gongkai (translated by Phil Tinari), explaining the attraction of the vulture in *Art and China's Revolution*

. . . he will always be, to most persons, just a plain old buzzard up there in the sky.

-Ronald Rood, *Animals Nobody Loves*

The plains of East Africa. Having just killed a Wildebeest, a pride of Lions now have to contend with a crowd of smaller carnivores trying to snatch scraps of their hard-won meal. Spotted Hyenas in ones and twos occasionally rush cackling towards the carcass, only to be driven back by the Lions. Smaller and quicker than the hyenas, Golden and Black-backed Jackals frequently succeed in dodging between the big cats to grab mouthfuls of still-warm meat. The most numerous of the scavengers, large, drab-looking birds with long necks and heads bare of feathers, seem less bold than their mammalian counterparts; they merely circle overhead or land at a respectful distance from the Lions, waiting for them to vacate the carcass. Then one of them, smaller than the rest with large blue-rimmed brown eyes and a long, slender bill, shuffles up to the dead Wildebeest as though it is entirely oblivious of the lions. A lioness notices it and, taking exception to its impudence, swats her huge paw at the bird; but it merely leaps into the air with a couple of quick flaps, dodging the blow with the easy grace of a veteran pugilist. Another Lion takes a swing, which is just as easily avoided; and a half-grown cub that rushes at the bird with its fangs bared is merely leapt over with a hurried flutter of wings, leaving the young cat staring perplexed at the ground where its runtish foe stood only a moment before. After that, the Lions decide that the small interloper isn't worth the trouble of attacking, and it feeds at the carcass in relative peace, beside carnivores a hundred times heavier than itself.

São Paulo, Brazil. The melody of a samba wafts from the open window of a tenement building as a horde of black-and-grey creatures swarms over a towering heap of garbage, searching for anything edible. In the course of its rummaging, one creature flings aside a scrap of cardboard and discovers beneath it a half-eaten hamburger; but it only manages to take a single bite before its cohorts rush forward to stake their own claims upon the overripe fast food. As the animals rush back and forth, nimbly attacking and dodging in turn, they seem so at home on the ground, amongst the garbage, that they could almost be mistaken for overgrown bipedal rats - until one of them finally manages to clamp a secure hold on the burger, gulps it down, and then spreads wide, blunt-tipped black wings streaked with white. It takes to the air with a few quick flaps and turns for a nearby skyscraper, the highest balcony of which is spattered with telltale white droppings. A hamburger is a rare delicacy, and this creature has young to feed.

High in the Swiss Alps. An enormous bird, remarkably handsome in black and white plumage, with streaks of rust staining its breast and neck and a black beard that hangs stiff despite the continuous wind, grasps in its feet a bone as heavy as itself and carries it into the air with a single elegant flap of its vast, pointed wings. It circles high above a broad patch of bare rock, already littered

with countless shards, and holds the bone in one foot, occasionally reaching out with the other to steady it. Then it lets go. The bone falls straight and true, hitting the rock with a loud *crack* and splitting down the middle, scattering still more shards across the rocks. The bird hurriedly drops down beside its prize, lifts one half of the bone in its bill, and swallows it into a maw seemingly as wide as the gates of hell. Then it sticks its bill into the shaft of the other half and sucks out the marrow, occasionally looking up and glancing from side to side, as though afraid to be caught in some illicit activity.

Somewhere in the American Midwest. After escaping from its paddock, a domestic Sheep has run afoul of an eighteen-wheeler truck barreling along a rural highway at sixty miles per hour. The impact not only knocked the Sheep halfway out of its skin, but also knocked its body off the road, into a dense thicket of shrubs and small trees. The bloodied carcass now smells powerfully in the ninety-degree heat; but no mammals have yet tracked it down, and no birds can see it beneath the vegetation. It rests undisturbed by anything but insects; but not for long. A silver-winged, red-headed specter is cruising back and forth over the thicket, tilting gently from side to side as the summer breezes rise and fall. It approached the thicket not long ago, from downwind of the carcass, and has loitered over the area since then, apparently searching for something that it suspects is there, but that it can't quite place. After a few more minutes in the air it lands, silently, and walks into the mass of vegetation - directly to the Sheep's mangled hindquarters. In the distance, other silvered wings can be seen steadily approaching from downwind; before long, this dead Sheep is not only going to be an open secret, it's also going to be quite a few pounds lighter.

Deep in the rainforest of Southern Mexico. Beneath the sunlight-blocking canopy of green leaves, a tree sloth lies dead on the forest floor. It has already been discovered by a number of birds, which are hurriedly tugging at its thick skin in hopes of winning a portion of its flesh before their meal is interrupted. But their movements have not gone unnoticed. A half-mile above them, a striking black-and-white bird folds its two-yard-wide wings and drops through the sky in a steep, circling dive. Reaching the trees, it plummets through the verdant foliage like a technicolor meteor and hits the ground strutting, its rainbow-colored head and neck thrust forward in an unmistakable gesture of confident dominance. The other birds make way for the newcomer as it strides towards the food; it is the "king," after all.

The steppes of Central Asia. A mid-sized, dewy-eyed rodent cautiously shuffles from its burrow and sniffs the air -- only to immediately be struck down by a brown blur tipped with lethal talons. The eagle hits its prey with a loud *thump* and spasmodically clenches its feet, driving its talons into the warm body as the rodent squeals its life away. But no sooner has the small mammal gasped its last and the blood stopped bubbling from its wounds than the eagle releases its kill and backs away a few steps, as it sees an ominously large shadow approaching across the flat ground. A huge, brownish-black bird, much bigger than the eagle, drops to the ground a few yards away with surprising nimbleness, half-folds its wings, and stalks over to the dead rodent. As it rips the rodent's hide open with a single slash of its huge bill, the eagle retreats without protest, and flaps off to hunt again. It knows better than to contest a carcass with *this* bird.

A wetland in southern Africa. A mass of young Flamingos are strutting about in the mud, flapping their wings and occasionally practicing short flights. One of them takes to the air and flies above the wetland, seemingly enjoying its newfound freedom - but not for long. It's caught the attention of a group of massive, fierce-looking birds with vivid red heads, which flap into the air and maneuver into a loose formation, like a squadron of fighter jets. The others follow as the leading bird veers towards the Flamingo, which realizes the danger and flies as quickly as it can in an attempt to



escape. After a couple of minutes, the leading bird seems to tire of the chase, and veers away towards the rear of the group; but the following bird quickly takes its place, hounding the Flamingo. Before long, the Flamingo's strength flags; noticing this, the lead hunter dives at it, striking it with tremendous force. The Flamingo collapses into the mud, and the hunters quickly descend around it, devouring it in a swirl of blood and pink feathers.

I'll hazard a guess, dear reader, and say that none of these scenarios seems at all familiar to you as a scene that you would picture when thinking of vultures. But, believe it or not, the leading roles in each of these scenarios are played by vultures; and all of the actions mentioned are ordinary, everyday behaviors for vultures around the world as I write, and as you read. If you're a bit confused, then your confusion is understandable. To most people, a vulture is a very specific kind of bird with very specific behavior; who knew that vultures were so diverse, and that the very word *vulture* had such an elastic meaning? However, *vulture* is in no sense a technical term; it has had different meanings in different times and places. Some of the birds that are today called *vultures* were once called *eagles*, or *kites*, or something more obscure; and some birds that would never be thought of as *vultures* today were once faithfully lumped together with the carrion birds. Nevertheless, the birds that modern science calls *vultures*, and that most people in today's world think of as "vultures," are fairly distinct and easily recognized. Today, the word *vulture* is generally used to refer to any large, primarily or exclusively carrion-feeding bird with a hooked bill that is *not* obviously an eagle; that is, any that doesn't have a fully-feathered head and neck. With a couple of exceptions, this definition fits all of the recognized species of vulture quite well.

The living vultures are divided into two geographic groups: New World and Old World, based, as you might guess, upon whether they live in the Americas, or in Africa and Eurasia. (There are no vultures inhabiting Australia, Antarctica, or most oceanic islands.) Today, the geographic division between New and Old World vultures happens to coincide with the profound biological differences between the two groups; and so in this book, as in most other vulture literature, *New World* and *Old World* are also used in a biological sense. Vultures of both the New and Old World types can be separated into categories of large and small, which differ in form and behavior as well as in size. Large vultures are among the biggest of all flying birds, and are heavily built, with deep, powerful bills for ripping apart large animals. Being too massive to stay aloft by flapping their wings for extended periods, they are largely dependent on the skillful use of air currents when flying long distances; and upon arriving at carcasses, they are dominant over most or all other scavenging birds. As the only birds that are effective scavengers of large mammals, large vultures have no substantial competition in their ecological roles. Unfortunately, as wild large mammals have steadily been exterminated throughout the world those ecological roles have become increasingly marginalized, and most of the vultures that have had trouble adapting to the rise of humanity and the industrialized modern world are large vultures.

Small vultures are comparatively lightly built (although still quite bulky, for birds). Their bills are long and slender, all-purpose tools adapted for a variety of feeding strategies rather than specialized meat cleavers. Being smaller and much lighter than their bigger cohorts, they are not as dependent on air currents for flight as are the large vultures, and they're able to seek food in times and places that are usually off-limits to the large vultures. But they also lack the clear-cut dominance over other avian scavengers enjoyed by the large vultures, and as unspecialized, mid-sized scavengers they face much competition from other birds. Compared to the large vultures, the small vultures are more generalized in behavior, more bold around carnivorous mammals like Lions, Wolves, and humans, and more apt to tolerate disturbance from humans and their machinery.

Although both large and small vultures are popularly thought of as “vultures” today, few societies other than that of the modern Western world have lumped large and small vultures together under a single name, or conceptualized a “vulture” that combined elements of both. Almost invariably, people around the world who saw a small vulture that sought out human settlements and scavenged on miscellaneous scraps would say “this is one thing”; and, upon seeing a large vulture that mostly avoided humans and scavenged large carcasses, said “this is something else.” Both types are equally fascinating, and the species that comprise them much more so; but unfortunately, a full and detailed description of each vulture species is well beyond the scope of one short chapter. Still, some background information about each vulture species is needed for the rest of this book to make any kind of sense, and we’d best deal with it here and now. The 23 living vulture species consist of seven New World and 16 Old World vultures, and each grouping can be further divided into several cohorts of closely related species.

We’ve already met the most numerous of the New World vultures: the denizen of the São Paulan garbage dump, the Black Vulture (*Coragyps atratus*). Common throughout South America and the southern third of North America, this bird is widely noted for its boldness, gregarious nature,



and adaptability. It eats all sorts of carrion, attacks a wide variety of live prey, and can live in almost any habitat throughout its range, from seashores to forests to open plains - but it especially thrives in the presence of humans, and is probably the only bird in the world that was ever used as a means of execution. The Black Vulture and the other six species of New World vulture have traditionally been thought of as true birds of prey, or “raptors,” along with all of the various kites, hawks, eagles, and Old World vultures. They are now thought on the basis of anatomical,<sup>[1]</sup> behavioral,<sup>[2]</sup> and genetic evidence to be more closely related to the storks.<sup>[3]</sup> They share a number of characteristic traits with their long-legged waterbird cousins which are not found in the true raptors, including the lack of a voice box and prehensile feet, and the unsavory (but entertaining) habit of defecating on their own legs.

Much the most famous of the New World vultures are the two biggest species, the Andean Condor of western South America and the California Condor of western North America. In terms of bodily size, and the portions of sky blotted out by their outspread wings, the two condors are the largest flying birds alive today; they stand almost four feet (1.2 m) high at rest, with wingspans in the range of nine to ten feet (2.8-3.1 m). They are perhaps the most accomplished soaring fliers in the animal world; it is nothing unusual for a condor to fly several hundred miles in a single day by riding updrafts and thermals, scarcely ever flapping its wings except at takeoff and landing. (Distant condors are frequently mistaken for small airplanes, and vice versa, so steady are they in their flight.) The condors



feed mostly on the carcasses of large mammals, although the California Condor (*Gymnogyps californianus*) has adapted quite well to smaller items in recent years; and the Andean Condor (*Vultur gryphus*) will eat the eggs and chicks of seabirds, and has been accused with some justification of hunting larger animals, as we'll see in later chapters. Condors lay only one egg every two years under normal conditions, and the periods that their young take to hatch, fledge, and leave the care of their parents are among the longest of any bird.

The King Vulture (*Sarcoramphus papa*), although much smaller than the condors, is thought to be closely related to them, as it's similar in to them in many respects. However, its preferred habitat is very different from the condors' mountainous haunts. As we saw at the beginning of this

chapter, the King Vulture is the dominant scavenger of the Central and South American rainforests (hence its name), and is typically seen soaring high above the canopy, watching the smaller vultures as they search far below. When they descend to a carcass, it follows, and its heavy bill allows it to tear open carcasses that would go rotten without the King's presence. It is also far and away the most colorful of all the vultures, with a kaleidoscopically hued head and neck that would put many parrots to shame, and the only vulture species that can be said to be popular as a subject for painters.



The remaining three New World species are closely related to each other, as all belong to the same genus, *Cathartes*. They are all small, lightly built, and notably unaggressive in most circumstances; more distinctively, they are the only vultures known to possess functional senses of smell. This allows them to find carcasses that are unavailable to scavengers which search only by sight, and helps them to thrive in heavily forested areas where vision alone is of little use in finding food. The Turkey Vulture (*Cathartes aura*) is the most widespread of the three, its vast range encompassing everything from Southern Canada down to Tierra del Fuego, and its teetering, shallow-V shaped silhouette is a common sight along many an American freeway. The two Yellow-headed vultures, on the other hand, are among the least-known large birds in the world; the Greater (*C. melambrotus*) was not even described as a species in its own right until 1964. The Lesser (*C. burrovianus*) is marginally more familiar, perhaps because it prefers marshes and waterways to the Greater's trackless rainforest. Although much recent research has focused on the Yellow-headed vultures, their behavior and biology are still largely unknown; but, like the Turkey Vulture, they are probably

moderately social, lay an average of two eggs per year, and feed largely on small carcasses.



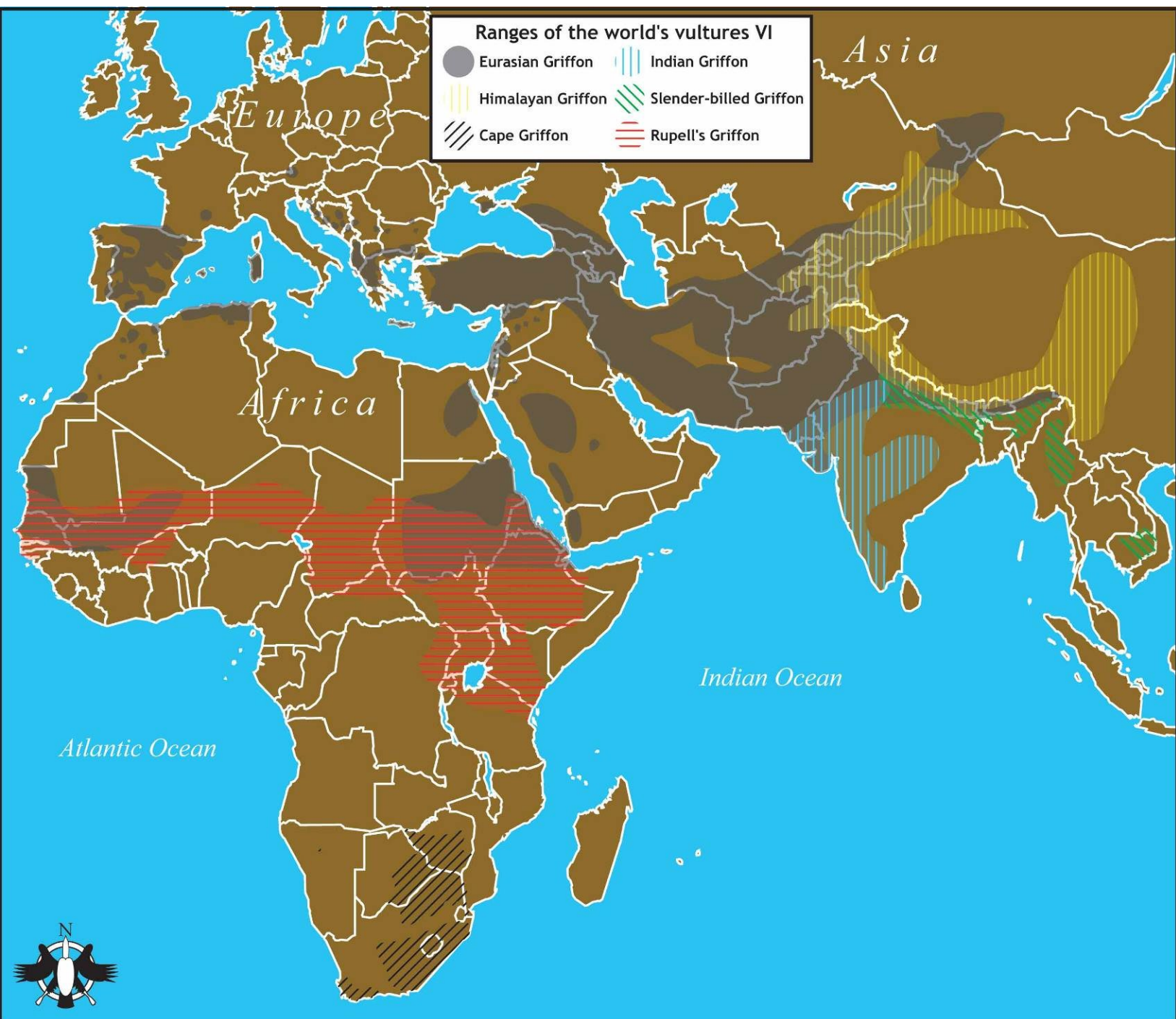
The Old World vultures are more of a mixed rabble than their New World counterparts, as they comprise two primary groups, a small, primitive species which shares characteristics with both groups, and three species which are quite unlike all of the others. The primitive species, the Hooded Vulture (*Necrosyrtes monachus*), is a denizen of sub-Saharan Africa and is one of the smallest vultures. This brownish, thin-billed bird is therefore easily dominated by most other vultures at carcasses. Yet its light weight gives it a great advantage over the bigger vultures: it isn't dependent on powerful upwellings of hot air (thermals), to fly, as they are. A Hooded can go out looking for food early in the morning, when only weak thermals have formed and when most vultures are still grounded; and it can stay out late in the evening, after thermals have dissipated and other vultures have retired to their nightly perches. As we saw at the

beginning of this chapter, its agility also allows it to boldly venture into situations, such as gatherings of Lions, where larger vultures fear to tread. This bird has remarkably large eyes; in relation to its size, they're bigger than those of any other vulture. Such oversized ocular equipment is typical of animals with nocturnal or crepuscular habits (like owls and cats), and also of forest animals, which live their lives in the dim gloom below a leafy canopy. The Hooded is one of the few vultures that has frequently been seen feeding and flying at night, and it's also fairly unusual in its habit of feeding on carcasses cached in trees by Leopards and other predators. It may be easily pushed aside out on the plains in broad daylight, but this resourceful bird has discovered other times and places to find food; and, as we'll see later, it has also adapted to humanity very successfully.

The first of the primary Old World vulture groups, the griffons, are the most highly adapted of all vultures for the scavenging lifestyle; some biologists have taken to calling them "super-vultures" in recognition of their status as the largest and most successful dedicated scavengers on earth. All eight griffon species are large and heavy with long, broad wings, are social to varying degrees, and depend on almost exclusively on carrion for food, usually from large carcasses that lie in open terrain. They're well adapted for this diet, with narrow skulls that can squeeze into tight openings and strong, spiky tongues for scooping raw meat. But their real secret weapons are their long, muscular (not "scrawny") necks, which are specially adapted for the penetration of orifices or wounds that already exist, and can spare the birds the trouble of making new ones. A group of griffons can ably consume all of the flesh on a sheep- or goat-sized carcass through one small hole in its hide, leaving behind nothing but an intact skin draped over a stripped skeleton.







The griffon genus includes the Eurasian Griffon or Griffon Vulture (*Gyps fulvus*) of southern Eurasia and northern Africa, the Cape Griffon (*G. coprotheres*) of southern Africa, the Rüppell's Griffon (*G. rueppelli*) of sub-Saharan Africa, the Himalayan Griffon or Snow Vulture (*G. himalayensis*) of Central Asia, the Indian or Long-billed Griffon (*G. indicus*), and the Slender-billed Griffon (*G. tenuirostris*), the latter two native to India and Southeast Asia. All of these birds lay only one egg per year, and they usually breed in cliff-bound colonies of many pairs, although the Slender-billed builds its nest in trees, and the Himalayan often nests as single pairs. Especially when compared to the other birds of prey, the griffons are notable for their almost complete lack of territoriality; a pair of griffons will usually defend only the immediate vicinity of their nest from other griffons, which explains why a single cliff may house hundreds of pairs of the huge vultures. Griffon nests tend to be astonishingly small for such large birds; but then, nests that rest on bare rock don't need to be

very sturdy. Griffons often fly at tremendous heights in order to search the maximum amount of terrain for carcasses; in fact, the altitude record for any bird is posthumously held by a Rüppell's Griffon that crashed into an airliner over Ivory Coast, in West Africa, at 37,000 feet (11,285 m) above sea level.<sup>[4]</sup>

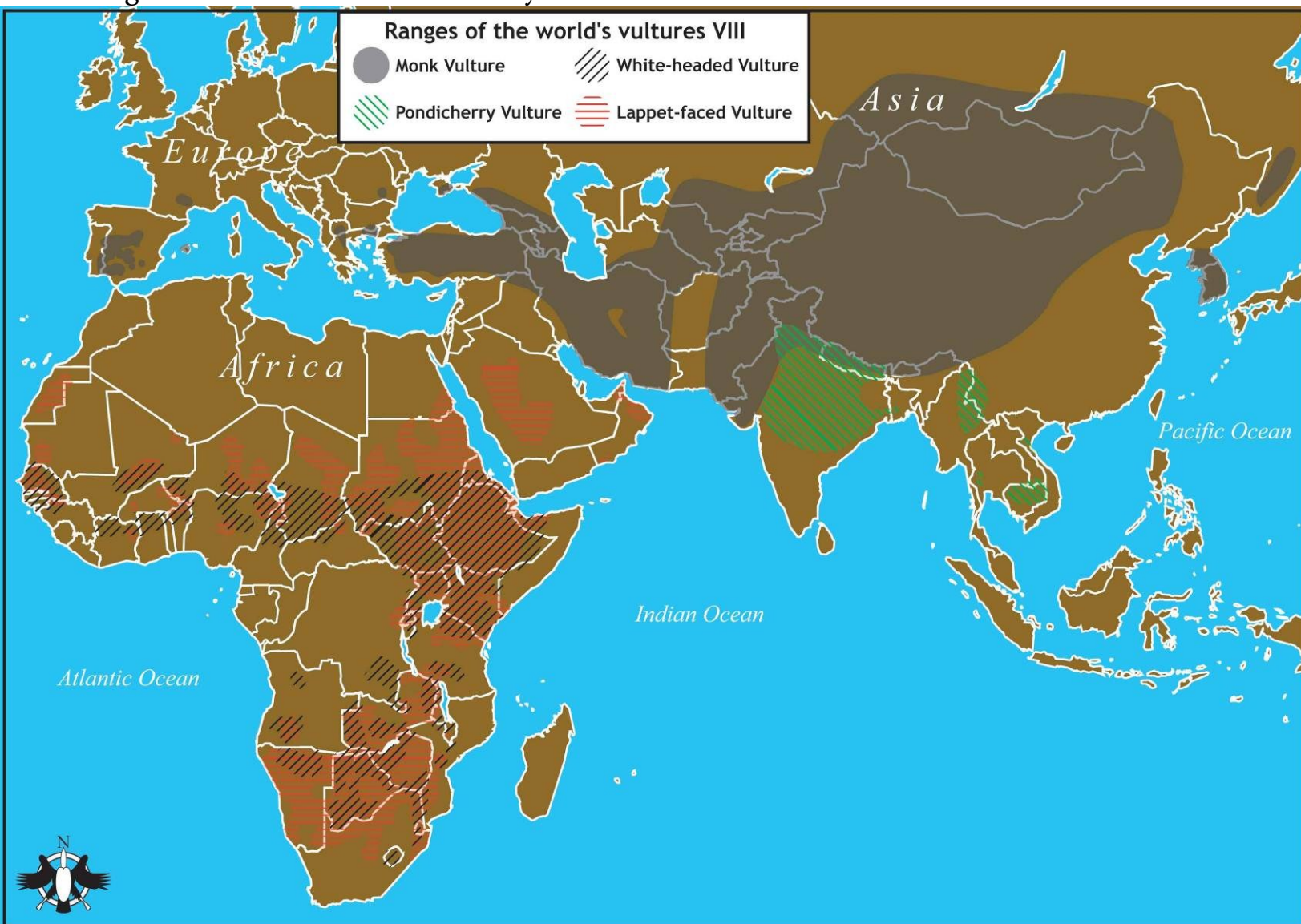


Two more species, the White-backed (*Gyps africanus*) and White-rumped (*G. bengalensis*) Vultures, might be dubbed “junior griffons” (and in this book, they are included under the generic lowercase term *griffons*). They look and behave much like the true griffons; but they are considerably smaller, with proportionately shorter bills, only 12 tail feathers instead of 14, and they nest in trees instead of on cliffs. They are not as colonial in their breeding as are the true griffons, but they more than make up for it at carcasses, where they may gather in brawling, screeching congregations of hundreds of birds. Of all the large vultures, these two species are the least shy around humans; until very recently, the White-rumped Vulture was the most abundant large bird of prey in the world, and it had attained that status largely because of its willingness to live and feed alongside people.

The second primary group of Old World vultures encompasses the “dark vultures,” so-called because their plumage is predominantly blackish or brownish. This fearsome bunch includes the Lappet-Faced (*Aegypius trachelitos*), Monk (*A. monachus*), Pondicherry (*A. calvus*), and White-headed (*A. occipitalus*) Vultures. These birds behave more like typical birds of prey than do the griffons; they actively defend territories around their nests from intruders, and they nest in single pairs or in very loose colonies. They are generally more stoutly built than the griffons, with shorter necks, broader skulls, heavier bills, and more massive talons. All of the dark vultures acquire some of their food from carcasses too small to catch the griffons' attention, and from piracy (stealing food from other



carnivores); and there are credible eyewitness accounts of predation and attempted predation by each species.<sup>[5]</sup> Unlike most of the griffons, dark vultures commonly feed from carcasses that lie in thick vegetation, and they build their large, labor-intensive nests in trees, suggesting that their ancestors may have inhabited forests rather than open spaces. Fossils recently discovered in northwestern China indicate that the dark vultures have indeed descended from arboreal birds, and that they've existed in recognizable form for at least 7 million years.<sup>[6]</sup>



The most formidable dark vultures, the Lappet-faced and Monk, are the largest raptors in their respective continents (Africa and Eurasia); and should they choose to compete with the griffons, they are the dominant birds at any carcass. The Lappet-faced or Nubian Vulture has the largest and most powerful bill of any raptor,<sup>[7]</sup> a jaws-of-death that is equally well suited to ripping open the skin of a dead Wildebeest or to killing a flamingo. The Monk (also known as the Cinereous or Black Vulture), which may exceed 9 feet (2.8 m) in wingspan and 22 pounds (10 kg) in weight, is reputed to be capable of intimidating hungry Wolves at a carcass,<sup>[8]</sup> and, as we saw at the beginning of this chapter, it's well able to dispossess an eagle of its kill. The smaller and more colorful White-headed Vulture of Africa is an enigmatic bird; some aspects of its behavior suggest that it's the most predatory of all the Old World vultures,<sup>[9]</sup> and it is very shy, antisocial towards vultures of other species as well as of its own, and it shuns contact with humans in the wild. The Pondicherry or Red-headed Vulture of India and

Southeast Asia is the least studied of all the Old World vultures (with the possible exception of the Himalayan Griffon); aside from its attraction to small carcasses and a peculiar tendency to inhabit deep forests, where it's often the only vulture,<sup>[10]</sup> its behavior is largely a mystery. As we'll see later, many of the people who share its habitat believe that it's something of a predator as well as a scavenger.

Although the griffons and dark vultures have pursued different evolutionary pathways, they remain quite closely related; so close that a griffon can actually interbreed with a dark vulture and produce hybrid offspring, as has happened at least twice in captivity.<sup>[11]</sup> But the remaining three Old

World vultures aren't at all closely related to their more typical kin; two of them don't even resemble the stereotypical image of a vulture. The Palmnut Vulture of Africa (*Gypohierax angolensis*), with its almost fully feathered head and black-and-white plumage, looks more like a fish-eagle (such as the American Bald Eagle) than a vulture - so much so that it's also known as the Vulturine Fish-eagle. This species is unique among all of the raptors in its primarily vegetarian diet; up to two-thirds of its food consists of the fruit of oil palm trees, with the remainder made up mostly of small aquatic animals which it catches and kills with its talons.<sup>[12]</sup> This species is very different from the other Old World vultures in almost every respect – even its nervous mannerisms mark it as a bird apart. Generally considered to be the most primitive of all the Old World vultures, it belongs to an ancient lineage that dates back at least 25 million years, and that has experienced only small evolutionary changes during that time.<sup>[13]</sup>

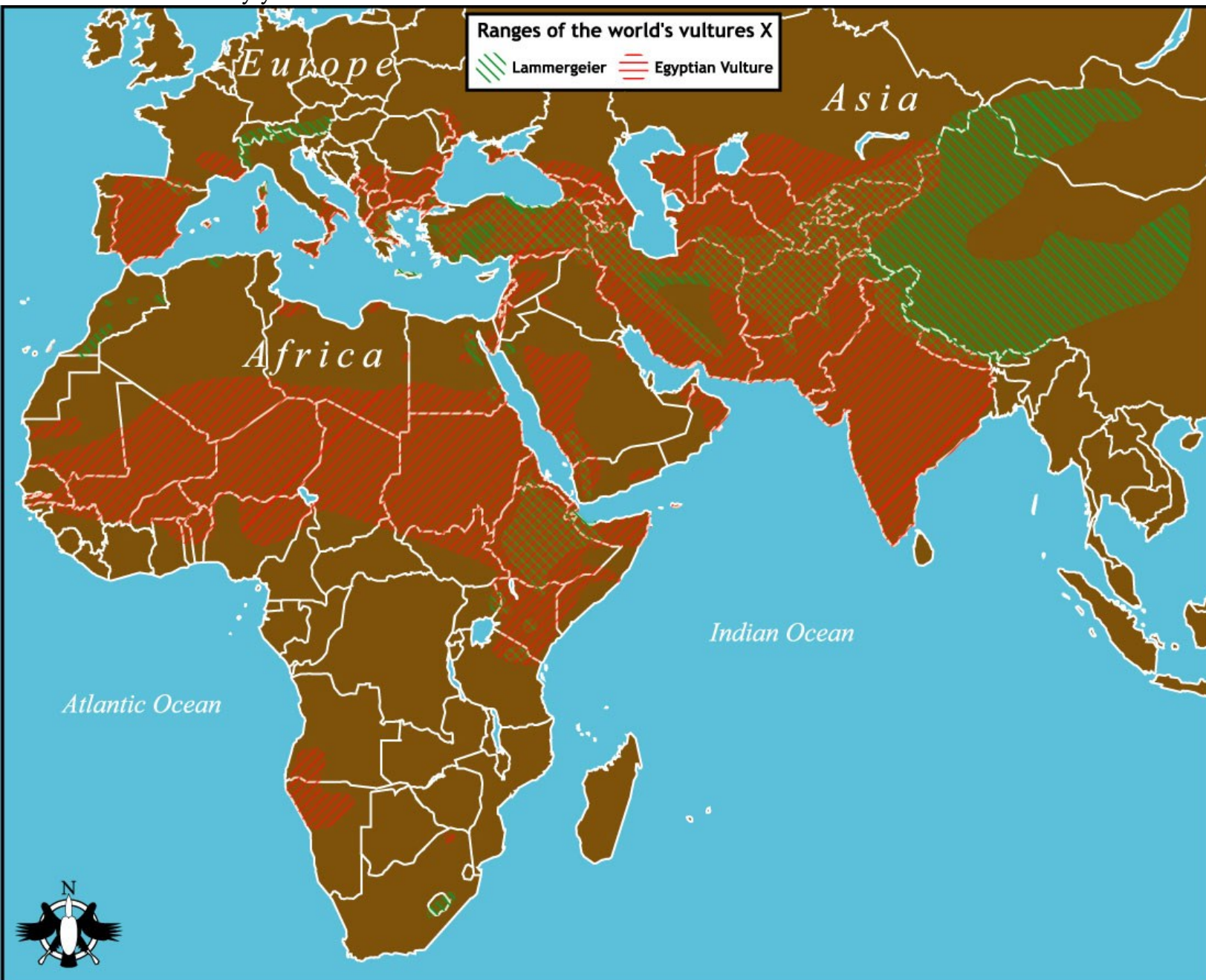
Recent genetic testing has revealed that the Palmnut's closest living relatives are the Lammergeier and Egyptian Vulture, but even they are rather distant relations of this strange bird.<sup>[14]</sup> As the Palmnut is almost entirely unvulturelike in its habits and is seldom thought of as a “vulture” by people familiar with it, it will play little part in the rest of this book.

The bone-breaking bird that we encountered in the Swiss Alps, the Lammergeier or Bearded Vulture (*Gypaetus barbatus*), has been eloquently described as a creature that has “fired the imagination of mankind from the earliest days of his civilisation,”<sup>[15]</sup> and it certainly is one of the most wonderfully bizarre animals on Earth. All other vulture species have developed at least partially bare or downy-feathered heads and necks, primarily because feathers present a grave hygienic problem if they're continually smeared with blood and entrails by feeding on large carcasses. The Lammergeier is able to bear a resplendent crown of feathers upon its broad head, because as much as 85% of its diet consists of a dry, clean food: bones.<sup>[16]</sup> The smaller ones it swallows whole, the larger ones it carries aloft in its talons and drops onto patches of bare rock, ossuaries, thereby smashing them into bite-sized pieces. (Some Lammergeiers also prey on small tortoises, which are treated in exactly the same



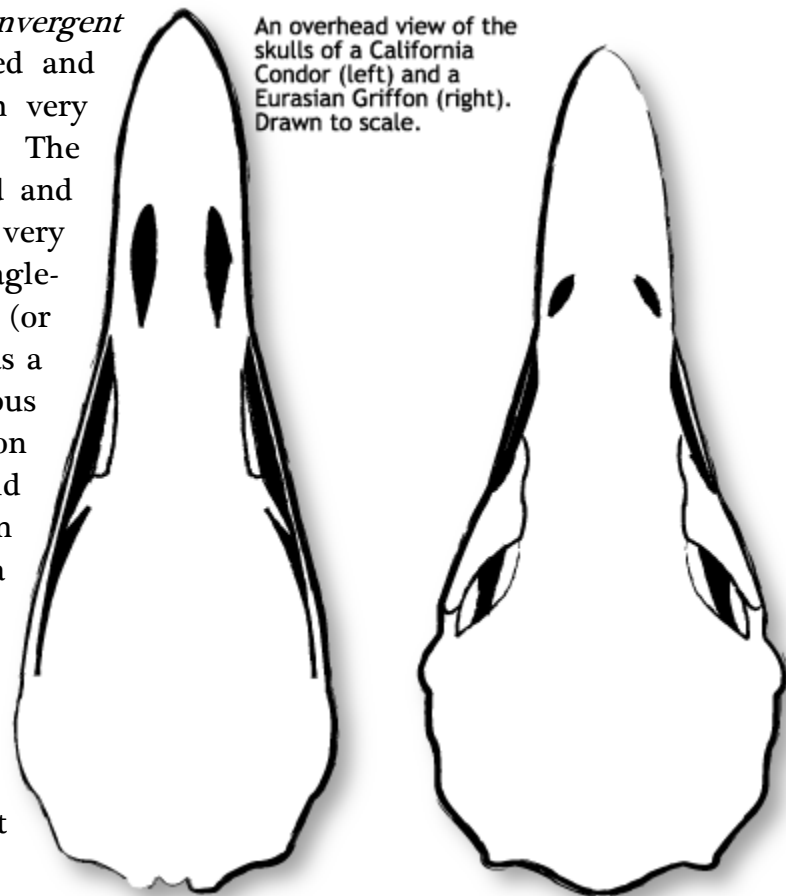


manner.<sup>[17]</sup> As far as is known, the Lammergeier is the only vertebrate animal of any kind that specializes in eating bones.<sup>[18]</sup> It has its own adaptations for its unique diet: a stomach overgenerously supplied with acid-secreting cells, a gaping maw wide enough to swallow a man's hand, strong though relatively small feet with powerful curved talons, and the unique “beard” of bristled feathers hanging from its bill, the exact purpose of which is still a mystery. It also has the odd habit of covering its naturally white body feathers with iron oxide (rust), which is found in copious quantities among the streams and soil of the mountains that it calls home. Recent research suggests that Lammergeiers ornament themselves with this mineral as a visual signal to others of their own species, and that the birds bearing the most vivid rust are also the most socially powerful individuals.<sup>[19]</sup> Inasmuch as any vulture can be said to be “controversial,” the Lammergeier is the one, as we’ll see in later chapters. For now, suffice to say that the nature of this strange bird’s behavior and ecology has been fiercely debated for many years.



Now we come to the much-maligned Egyptian Vulture (*Neophron percnopterus*). The second smallest of the Old World vultures (only the Palmnut is more diminutive), it resembles a kite or gull in its slim build, aerial grace, and catholic eating habits. Egyptian Vultures can and will eat just about any kind of animal matter, from dead elephants to live snakes to human excrement. They are also one of only two raptor species known to use tools in the wild; as first documented by Jane Goodall and Hugo Van Lawick in East Africa, they will pick up small stones with their bills and toss them at Ostrich eggs, in order to crack their otherwise impenetrable shells and devour the copious amounts of yolk contained inside.<sup>[20]</sup> The Egyptian Vulture's closest living relative is the Lammergeier, with which it shares a similar body structure (albeit on a much smaller scale), a comparable distribution across Eurasia and Africa, the habit of building its nest on high, remote cliffs, and a usual clutch of two eggs. These two species are very different from the other Old World vultures, and probably have their own ancient and distinct lineage among the birds of prey;<sup>[21]</sup> we'll see in the next chapter that there is [some circumstantial evidence](#) that their ancestors may actually have originated in the Americas, and emigrated to the Old World only relatively recently.

Thus endeth the polite introductions; now it's time to delve into the sordid family histories. While it may be convenient enough to divide the living vulture species into the New and Old World groups, such an arrangement becomes confusing when *extinct* species are factored in, because New World vultures were once common in the Old World (although they vanished from there many millions of years ago), and one lineage of Old World vultures maintained a strong presence in the New World until the mass extinctions that took place there about 10,000 years ago. It may seem wildly improbable that the New and Old World vultures, which likely last shared a common ancestor not long after dinosaurs were still stalking the earth, are today so similar to each other in appearance and appetite. Yet such similarities aren't all that rare in the natural world; they're the result of a surprisingly common phenomenon called *convergent evolution*. It's what happens when two unrelated and geographically separated organisms evolve from very different creatures into very similar creatures. The earliest recognizable ancestors of the Old World and New World vultures looked and behaved very differently from each other: the former were eagle- and kite-like raptors, and the latter was a creature (or creatures) that could probably be best described as a specialized, carrion-eating stork. The obvious conclusion that similar pressures were acting on each group can be inferred merely by watching Old World and New World vultures together in an aviary; they are so superficially similar that a casual observer would be hard-pressed to tell which birds belonged to which assemblage. But the two groups are so unrelated that there would be a better chance of interbreeding a rhinoceros and a donkey than a griffon and a condor. (Not that I recommend either experiment, I'm just making the point.)





Despite a common taste in food, much of the behavior of the two groups is still very different. None of the New World vultures build nests; they simply lay their eggs in the most suitable spot they can find, be it a pothole on the side of a cliff, a hollow tree stump, or the ledge of a disused building. All of the Old World vultures build nests, and some are huge; a typical Lappet-faced Vulture's nest is as big as a king-sized bed. Befitting their waterbird lineage, New World vultures are more often seen scavenging along coasts, lakes, and rivers than are Old World vultures; in fact, one New World species, the Lesser Yellow-headed Vulture, seems to specialize in aquatic carrion to some extent.<sup>[22]</sup> With the conspicuous exceptions of the Black Vulture and Andean Condor, New World vultures also seem to be less quarrelsome and aggressive than their Old World counterparts. This difference in temperament can be demonstrated with a quick study of comparative behavior: whereas a California Condor will usually (though not inevitably) give way to a Golden Eagle when the two birds are contesting a carcass, even though the Condor is much larger than the Eagle, an Old World griffon or dark vulture is normally dominant over any and all eagles in disputes over food.<sup>[23]</sup>

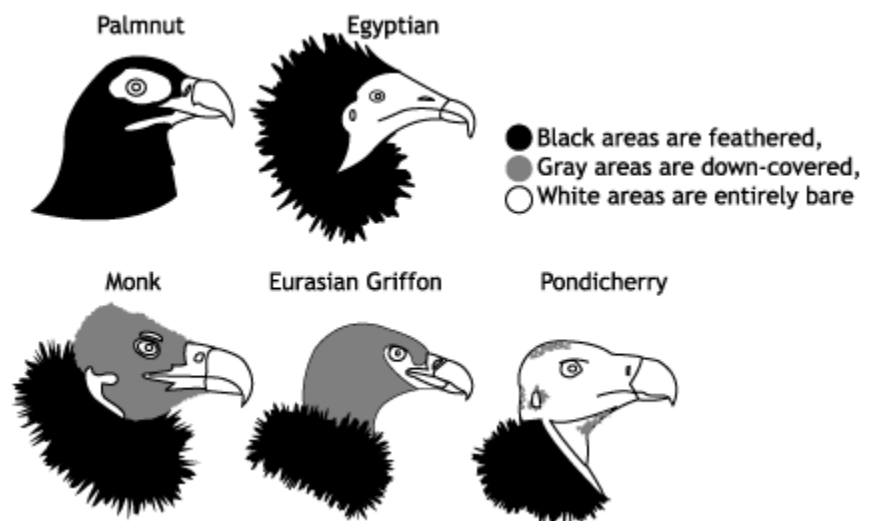
Ecologically speaking, the most important difference between the two groups is that the New World vultures that have survived to the present day are more generalized than their Old World counterparts. A number of Old World species are highly specialized feeders and will only nest in very specific areas, whereas New World vultures tend to be catholic in their diets and not very demanding in terms of habitat or nesting sites.<sup>[24]</sup> The Black and Turkey Vultures, in particular, seem to be able to live and breed almost anywhere provided there's enough food, from deep forests to parched deserts to raucous cities. Few of the Old World vultures can match this adaptability, which may help to explain why there are currently more than twice as many vulture species in the Old World than in the New World; and why, despite that discrepancy, there are currently far more individual vultures in the New World than in the Old. In fact, the Black and Turkey Vultures are each more numerous than the populations of all of the Old World species put together. It's clear, then, that the New World and Old World vultures are *not* interchangeable; if they were to somehow trade places, the ecosystems that they inhabit would suddenly become very different places, and the local human-vulture relationships would be drastically transformed.

Many would still be compelled to wonder why two types of birds as vastly dissimilar in form and habits as raptors and storks would give rise to such apparently similar descendents, particularly when those descendents are then left to lead such a difficult and seemingly self-limiting lifestyle. But, whatever one's personal opinions of the avian scavenger niche, it has proven to be very popular and widespread. Almost every area which is naturally bereft of vultures has some other winged carcass-removers to take their place: skuas and petrels in the Arctic and Antarctic; eagles and ravens in the northern tundra; albatrosses, gulls, and fulmars along coasts and on the open ocean; crows, harriers, and hawks (occasionally, even parrots) on vultureless islands; and an array of eagles and kites with a collective predilection for carrion in Australia.

In contrast, there is not a single vertebrate land animal that depends solely on scavenging to feed itself; even those mammals most notorious for their carrion-eating habits, like jackals, hyenas, and Tasmanian Devils, don't subsist *entirely* on carrion. Few carnivorous mammals or reptiles will turn down reasonably fresh carrion, but none feed upon it to the exclusion of anything else; if they attempted to do so, they would quickly starve. Vultures are afforded the privilege of a carrion-heavy diet thanks to their powers of flight; lifeless carcasses are few and far between, especially the larger ones, and a good deal of movement is usually required just to reach them. A ground-bound creature requires tremendous amounts of energy to move long distances, energy which usually cannot be replenished by sparse carrion. A vulture, on the other hand, need only heave itself into the air and let

its outstretched wings, its sharp eyes (or nose), and the wind and sun do the rest of the work. But vultures aren't born able to fly so efficiently; young vultures that have left the nest for the first time have to use cumbersome, energy-draining flapping flight during their first weeks at liberty, as do newly released vultures that have been held captive for a long time, and many of them starve to death as a result.<sup>[25]</sup> The ability to judge the placement of air currents and to harness them for long-distance movement is hard-won indeed. However, a vulture that has mastered the technique of soaring becomes a model of energetic conservation; like a professional dancer or master swordsman, each movement that it makes results in maximal effect with minimal effort, and its actions exhibit no wasted energy or needless exertion. Far more than most other warm-blooded animals, vultures are experts at saving energy; the challenges of the scavenging lifestyle ensure that their lives are characterized by long periods of inactivity or of activities, such as soaring, that consume small amounts of energy, interspersed with short periods of frenetic physical action that are undertaken only with the expectation that the energy consumed will soon be replaced. Which explains why the usually phlegmatic birds often seem to become hyperactive at carcasses.

Upon finding their food, vultures will likely be faced with a very messy meal, and that's where the most noticeable vulturine characteristic comes in handy. Except for the Lammergeier, every vulture has a conspicuous lack of feathering in the cranial area, though that lack varies from small bare patches around the eyes and jaw (seen in the Palmnut Vulture) to a head that is entirely bald, except for scattered bristles (seen in all of the New World Vultures, plus the Old World Slender-billed Griffon and the Lappet-faced and Pondicherry Vultures). This curious condition is thought to be first and foremost an adaptation for the uniquely vulturine manner of feeding; as the late ornithologist Leslie Brown put it, "One only has to wash one's hair after taking active part in dissecting a hippo to appreciate the advantages of baldness." The differing bare- or downy-feathered parts of each vulture species correspond to some extent with that particular vulture's eating habits; for example, the griffons, which often insert their entire heads and necks into large carcasses, have no full feathering above the ruffs on their collars, while the Egyptian Vulture, which feeds largely by devouring small items or pecking at scraps of larger carcasses, is bare only on its face and part of its throat. This loss of feathering has led to much derision from humanity, of course; and it would seem to be a disadvantage for the vultures when dealing with their own kind, as they can't possess the feathered crests that many other birds use for visual signals. Yet bare skin itself offers opportunities for visual communication, and in many vulture species changes in skin color reflect both a bird's mood and, in disputes over carrion, its degree of dominance, with more dominant birds "blushing" to a bolder, deeper color and submissive birds "blanching" to a less threatening pale hue.



One might think that such a lack of insulation on the head would pose a chilling problem to vultures, particularly because many vulture species fly at very high altitudes where the ambient temperatures are always below freezing. But vultures normally fly with their necks retracted, minimizing the area of bare skin exposed to the wind and ensuring that the birds lose little heat from

their heads; and their thick, heavy coat of down and feathers ensures that the rest of the body is well-insulated. Yet that coat can also pose a problem; for upon returning to the ground, the birds may well be faced with ambient temperatures so high as to be dangerous without some way of venting excess heat. Fortunately, the heat trapped by the vulture's body feathers can then be lost through the uninsulated bare skin of the head and neck.<sup>[26]</sup> Some tropical vultures have lost even more feathering, and for much the same reason; the naked inner thighs of the Pondicherry Vulture, for example, allow that species to better cope with the extreme heat that it often faces in South Asia. Contrariwise, vultures that frequent the cooler climes of high mountains, such as the Andean Condor and Himalayan Griffon, have fully feathered bodies - additionally, they possess thick collars of down or feathers into which they can plunge their necks in order to escape the worst of the cold.

Some vultures also have a more active defense against the cold: they migrate south for the winter. The only species in which entire populations are known to migrate are the Turkey Vulture in North America and the Egyptian Vulture and Monk Vulture in Eurasia. All of these species vacate their breeding ranges for warmer southern climes in the autumn, returning north during the spring or early summer. In some other species, only young birds that haven't reached adulthood migrate; this pattern is found among Eurasian Griffon in Europe and Himalayan Griffons in Central Asia. The reasons why only younger birds migrate are not clear, but may involve the dominance of older birds over younger birds at carcasses, and the need of older birds to care for their eggs and chicks even through the cold winter months. The migratory patterns of the Monk Vulture and Himalayan Griffon have only recently been discovered, and other vulture species may well have as-yet unknown migrations of their own.

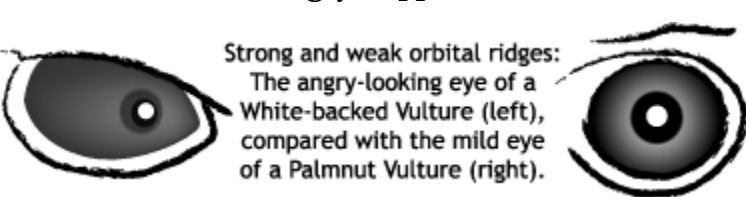
Migrating vultures are one of the most impressive wildlife spectacles in the world, due in no small part to the size of the birds. Even the smallest vulture species have four- to five-foot (1.2 to 1.5 m) wingspans and weigh several pounds (>1.5 kg), dwarfing most other birds, and the biggest species are among the largest flying birds that still exist. Great size ensures that the vultures are less vulnerable to starvation than smaller birds, as they can store bigger fat reserves and need less food in relation to their body size. The bulk also makes them more intimidating to other scavengers in the endless struggle for food, a point not lost on anyone who has seen a vulture face down a raven, kite, or eagle over a carcass. Considering the competition that they face, the present-day Lesser Yellow-headed and Egyptian Vultures may be about as small as modern vultures can be while still being able to function as vultures; but some extinct vultures were much smaller. A very ancient species in the New World lineage and another in one of the Old World lineages were both only about half the size of the smallest living vultures, and thus were probably comparable in weight and wingspread to a common crow.<sup>[27]</sup> At the opposite extreme, no known member of either the New or Old World vulture groups was bigger than today's largest species, the Andean Condor; but a group of extinct birds known as the teratorns, which may have been related to the New World vultures, contained species that were substantially larger.

Male and female vultures are roughly the same size in both the New and Old World groups; another stark difference from most birds of prey, in which the females are visibly larger and often more robust than the males. The reason for this relative sexual equality is uncertain; it may stem from the comparative immobility of the vultures' food, since the raptor species in which the female is much bigger than the male tend to hunt quick, agile prey. Similarity in size is likely also either a cause or an effect of the vultures' equable sharing of roles when rearing their young. Male and female vultures take turns incubating their eggs and brooding their chicks, and each sex devotes approximately equal amounts of time to these vital tasks; whereas in the majority of raptor species

only the female incubates and broods while the male hunts for her and the young. Even so, vulturine equality is not absolute; there are visible differences between the sexes in several vulture species. For example, male Andean Condors have fleshy combs atop their heads, which the females lack; female White-headed Vultures have more white feathering on their wings than do the males; and the genders of the Pondicherry Vulture differ in eye color, with the males possessing yellow eyes and the females red ones. These subtle distinctions suggest that the vultures themselves may need a visual cue to tell male from female. Along with most other large birds, vultures are generally believed to form monogamous breeding pairs that stay together for life. Hard evidence for this belief is somewhat lacking; but then, there is no evidence that vulture pairs *don't* usually stay together. A notable exception to this pattern is found in the Lammergeier; in some Lammergeier populations, as many as a fifth of all territories may be occupied by polyandrous trios, consisting of two males and one female.<sup>[28]</sup>

Sociability at home is extended to the workplace as well. The vultures that depend on large carcasses for food often form large aggregations, in which the number of birds actively bolting down food is limited only by the amount of space at the carcass. This strategy of crowding around food en masse is unlike that of most other scavenging birds, such as eagles, which usually feed at a carcass one at a time even if there's room for more. A mob of vultures is therefore much quicker than other birds to dispose of a carcass, and much more intimidating to any terrestrial scavengers which might chase off a single bird. There's also evidence that the vultures that do hunt live prey often do so in groups; the most predatory of the New World vultures, the Black Vulture, almost always hunts in coordinated group attacks, and eyewitness accounts of predation by Andean Condors, Lappet-faced Vultures, and a few griffon species indicates that those birds do so as well.

Whether attacking prey or competitors, the vultures' intimidation factor is aided by their prominent brow ridges, the bony growths overhanging the eyes that grant raptors their trademark "fierce and angry" appearance. Most vultures possess these ridges, which are actually protective



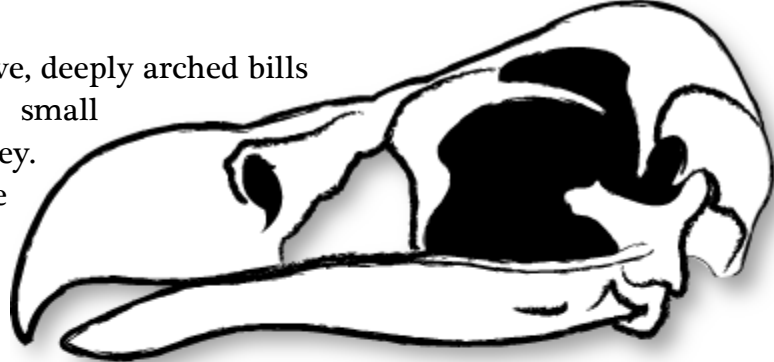
shields that serve both to intimidate competitors and to keep the eyes from being injured by prey or by another scavenger in a fight. The Old World griffons have the most exceptionally pronounced ridges, as might be expected from the frequency of their

brawls; and among both Old and New World vultures, older birds tend to have heavier ridges than younger birds.<sup>[30]</sup> The vultures' eyes are among the keenest of any animal; estimates of daytime vulturine visual acuity vary from two to eight times better than that of humans, which means the Talmud was exaggerating only slightly when it said that griffons could spot carrion in Palestine even as they flew over Babylon.<sup>[31]</sup>

Most of the Old World vultures possess massive, deeply arched bills for dismembering large animals, instead of the small creatures which are other raptors' usual prey.

Exceptions are found among the smaller species, the Egyptian Vulture and the Hooded Vulture, which have long, slender bills better suited to deftly snatching scraps than to tearing thick skin or slicing muscle and sinew. The New World vultures have also developed strongly hooked bills, which are very different from the long, conical bills of the storks from which they evolved. This adaptation can be attributed to the necessities of dining on carrion; simply put, a hooked bill is a requirement for a bird

to feed on any animal that is too big to swallow whole. Without a hooked cutting edge to its bill, it's all but impossible for a bird to dismember such a large meal; one could liken the problem facing a straight-billed scavenger to that facing a human diner who attempts to eat a jumbo steak while equipped with no utensil but a pair of needle-nosed pliers. The living species of stork that frequently eat carrion, the Greater Adjutant of Southern Asia and the Marabou of Africa, both have massive but otherwise typically stork-like straight, unhooked bills, which are useless for ripping flesh. When an Adjutant or Marabou feeds from a large carcass, it can only tug at it, attempting to pull loose meat or bones away, or (more often) try to steal chunks of meat that have already been torn away by vultures and other scavengers. It takes little imagination to picture how valuable hooked bills could be to carrion-eating birds like these. In both New and Old World vultures, the bill's hooked upper mandible is honed to a razor-sharp cutting edge, making for a superb cutting tool and a formidable weapon for attack and defense. Aiding the birds to wield this tool for best effect, the musculature of the neck and jaw is powerfully developed, especially in the vultures that depend on the carcasses of large animals for food.

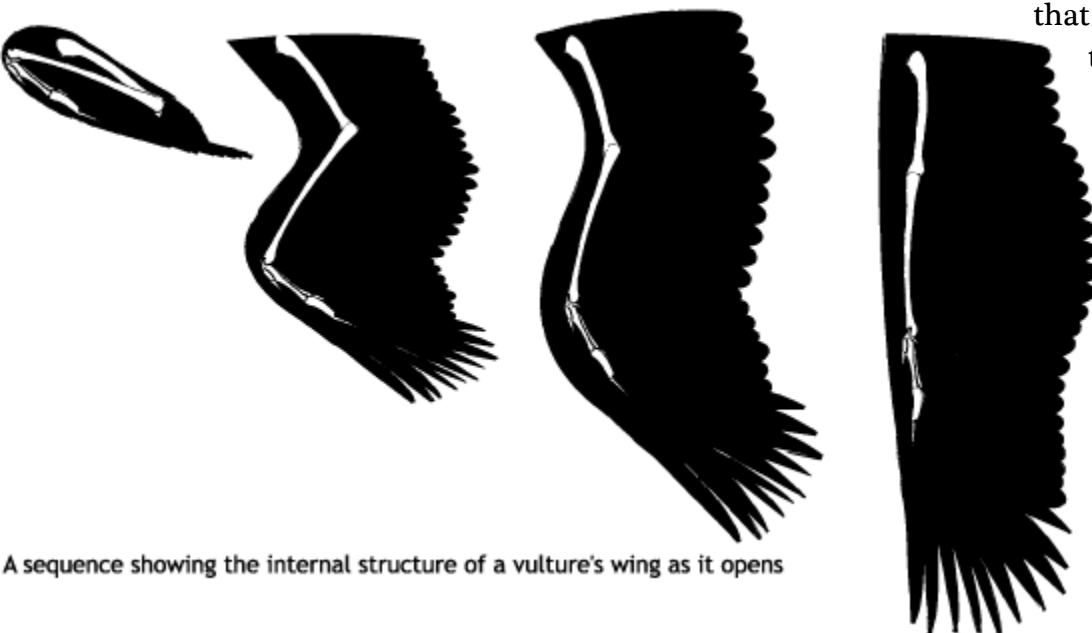


The skulls of a Monk Vulture (top) and a Hooded Vulture (middle), compared with that of a close non-vulturine relative, the Bateleur snake-eagle (bottom). Drawn to scale.



Like most large birds that retain the ability to fly, vultures have long wings, with wingspreads that measure about two-and-a-half

times wider than the bill-to-tail length of the birds. But even when compared to other large birds, the wings of vultures are enormous; not just long, but broad, tremendous feathered airfoils that blot out great expanses of sky in the endeavor to keep a heavy scavenger aloft. Vulturine wings terminate in widely separated primary feathers, looking very much like the fingers of an



A sequence showing the internal structure of a vulture's wing as it opens



outstretched human hand, that serve to reduce turbulence and keep the bird stable in the air. When a vulture is perched or grounded, the airfoils must be stowed away; and their great size can make them a bit cumbersome. The trademark hunched "shoulders" of perched vultures are actually the jutting wrist joints of folded wings that are almost too large for the compact bodies of the birds. With a few notable exceptions, such as the Turkey Vulture and Lammergeier, vultures have short tails with squared or rounded ends, and they often become even shorter through the everyday wear and tear of scavenging on the ground; the Black Vulture even uses its tail as a third leg, to help brace itself when tugging at carcasses. This combination of short tails, broad wings, and unfeathered (thus small-looking) heads gives most vultures a characteristic flying wing shape when airborne; especially when viewed at a distance, the birds appear to be *all* wing, apparently lacking the fore and aft protuberances that characterize other birds.

Vulturine body plumage is relatively loose and rough, giving the birds a rather shaggy, unkempt appearance. The consensus is that this is primarily an adaptation for the slow soaring flight typical of vultures; like flaps on an airplane, slack feathers provide a greater surface area for air to move across, giving the bird that they cover a slower stalling speed and allowing it to remain airborne in conditions that would cause other birds to fall from the sky. The plumage may provide a protective function as well; many vultures regularly fight members of their own or other species at carcasses, and loose, coarse feathers provide better protection against blows than would tight, fine plumage.<sup>[32]</sup> Some cultures believe that vulture feathers retain their aerodynamic qualities when wetted with blood, one reason why they were favored over the feathers of other birds when fletching arrows.<sup>[33]</sup> Whether vulture feathers really are blood-repellent or not remains to be determined, but such feathers would certainly be sensible attire for birds that routinely feast on (and sometimes *in*) the carcasses of large animals. This feathery body armor is almost always in pristine condition, for all vultures enjoy a good bath and bathe regularly - especially after meals. If they didn't, they would find themselves with some serious and potentially lethal bacterial problems. Like most other large, long-lived birds, young vultures tend to have drabber, darker plumage than the more boldly marked adult birds. The difference in appearance is especially noticeable in species which are largely pale at adulthood, such as the Himalayan Griffon and King Vulture; their young are so much darker than the adults that they appear to belong to entirely different species, and have sometimes been interpreted as such.

The Old World vultures generally have flatter, shorter talons than more typically predatory raptors like most eagles. Far from a "degeneration," as some have called it, this is an important adaptation to fit the vulturine lifestyle. The long, curved talons possessed by some eagles make them as clumsy as a human wearing crampons on concrete while grounded; but, unlike eagles, vultures need to be able to move quickly and with agility when grounded, because their food is usually too large to be carried away. With the exception of the Lammergeier, no vulture is known to scavenge like a kite, by swooping from the air, snatching food from the ground with its talons, and carrying it off to eat elsewhere. Vultures behave as aerial animals while searching for their food; but after finding it, they essentially become land-bound scavengers, performing virtually all of their feeding, fighting, and socializing on the ground. A vulture's food must be dealt with where it lies, meaning that the birds must be able to maneuver to match any competitors for that food, including land animals. This ability to walk and run readily - a grounded Monk Vulture can reputedly run almost as quickly as a man - makes vultures surprisingly comfortable and confident on the ground (as long as there aren't any large carnivorous mammals around). Sometimes vultures will even lay down to rest on flat, open land, a recourse that most raptors would resort to only if rendered flightless by sickness or injury.



From top to bottom, the right feet of: a Lammergeier, a Palmnut Vulture, a Pondicherry Vulture, and a White-backed Vulture. Not drawn to scale.



It's often said that compared to other birds of prey, the Old World vultures have weak feet with little gripping power; but field biologists and zoo personnel who have to handle vultures in the course of their work tend to vehemently disagree with that bit of ornithological dogma. One group of researchers who had to deal with a pair of captive Eurasian Griffons as they defended their nest remarked that it was "painfully evident" that anyone who had claimed that such birds had weak feet were "mistaken" in their assertions; and the researchers had the wounds to prove it.<sup>[34]</sup> All of the Old World vultures are capable of gripping objects with their feet; usually not people, but more often chunks of carrion, protrusions of large carcasses, or other vultures with which they are sparring. Several species, from the small Palmnut Vulture to the massive Lappet-faced Vulture, are reputed to have unusually powerful grips even by raptor standards.<sup>[35]</sup>

The New World vultures, on the other hand, possess feet upon which the hind toe is rudimentary in development and is elevated above the other toes, and so lack the "opposable thumb" of the Old World vultures and other raptors.<sup>[36]</sup> They also lack the system of locking tendons and specialized muscles that allows true birds of prey to flex their toes, and are thus incapable of exerting any substantial grip with their feet. Despite their proven ability to grip, most scientists maintain that none of the Old World vultures, except for the anomalous Lammergeier and Palmnut Vulture, ever carry *anything* into the air with their talons; but we'll see evidence

throughout the rest of the book that this isn't quite true. Usually, vultures transport their often-slippery and shapeless food in the crop, an extension of the esophagus that serves as a sort of "pre-stomach" in which food may be held until it's either sent to the stomach, or regurgitated as food for the birds' young. The Lammergeier is the only vulture that lacks a crop; and though most other birds do have them, those of the vultures are unusual in their size, capable of holding up to a fifth of the bird's body weight, and in their conspicuousness. Some South American cultures dubbed the King Vulture the "two-headed vulture" because its bare-skinned crop, when full of food, was so bulbous and ovoid that it looked like a second head protruding from the bird's chest.

The differences between vultures and the more typical birds of prey are not always clear-cut, however. Some vultures of both the New and Old World groups kill living prey, and many other raptors regularly eat carrion whenever they can. In the parts of the world that can claim native vultures, their very presence seems to be the primary if not only factor that prevents other birds of prey from depending on carrion for the majority of their food; and the scavenging behavior of raptors in places like Australia, where there are no vultures, strongly suggests that this is the case. The vultures have one additional, little-noted advantage over more predatory birds in their pursuit of the scavenging lifestyle: they can feed their young on carrion. Neither the other birds of prey nor the scavenging storks can do this; no matter how much adults may scavenge to feed themselves, they always revert to live prey when attempting to raise a brood of chicks.<sup>[37]</sup> Growing young birds need regular meals with ample calcium for building their bones, and flesh torn from carcasses too large to carry to the nest contains negligible amounts of this vital mineral. Adult vultures solve the problem

of calcium deprivation at least in part by providing their chicks with small intact carcasses, or with fragments of bone minute enough for their little ones to swallow and digest; but it seems likely that eons of scavenging have also made them much more efficient at extracting and metabolizing scarce sources of calcium than other carnivorous birds.<sup>[38]</sup>

Although both New and Old World Vultures departed from their ancestral groups tens of millions of years ago, and any birds that might be called “stork-vultures” or “eagle-vultures” are long since extinct, it’s still possible to find living birds that can be thought of as cousins to the vultures, once or twice removed. The living storks include three species of large size, bald heads, and partially scavenging habits that may resemble the New World vultures’ antecedents; and the living raptors count among their number the Bateleur, an aberrant and bare-faced African snake-eagle which, uniquely among its kind, feeds heavily on carrion, and is thought to be the Old World vultures’ closest living relative among the other birds of prey.<sup>[39]</sup>

To sum up, there are broad similarities among all vultures. They feed on carrion; most of them primarily, and some of them exclusively. They find said carrion via energy-efficient soaring, not by sustained flapping of their broad wings. All of them are large and heavy by avian standards, and all but the Lammergeier show some reduction in their head feathering. They are all noticeably quiet birds; the New World species because they lack voice boxes, the Old World species apparently because they have no need to be noisy - except at a carcass, where the uproar that the griffons often produce must be heard to be believed. And all of them are long-lived creatures that reproduce very slowly, even compared to other large birds. Most vulture species lay just one egg every year, and some of the larger species only one every one and-a-half or two years. This may seem like a ridiculously low reproductive rate for a bird - and it certainly has become a dangerous liability for vultures threatened by human pressures - but under normal circumstances, even the slowest-breeding vultures can lay enough eggs and raise enough young to easily maintain their numbers. Having little to worry about from predators once they reach adulthood, and immune to many of the more communicable diseases by necessity, vultures often live long enough for their geriatric appearance to be as much of a true reflection of their age as a scavenger’s affectation. Studies of breeding success and mortality of wild vultures indicate that in the unlikely event that they survive their juvenile years,<sup>[40]</sup> individuals regularly reach ages of 30 or 40. It isn’t unheard of for zoos and aviaries to keep vultures in their 50s, and there is at least one authentic case of a captive Andean Condor surviving past 70. It’s truly unfortunate for the vultures’ image that carrion-heavy diets are so debilitating for humans, and have given the scavenging occupation a bad name.

Speaking of bad names: to the untutored eye, a group of vultures around a carcass appears to be nothing more than a disorganized, chaotic mob; but it’s a far more complex and finely structured entity than that. In the most vulture-rich parts of the globe, individuals of as many as six different vulture species may be seen gathered together at a single large carcass, and that kind of variety quite obviously requires some kind of organization in order to function. As first theorized by the biologist Hans Kruuk and elaborated by Claus König and David Houston, different species of vulture which inhabit the same ecosystem and feed on similar foods can be thought of as a *guild*: an associated group of birds that work together (albeit unconsciously) as nature’s most superb and efficient scavenging machine. In each guild, there are vultures that function as “Searchers”: low-flying birds, such as the Turkey Vulture, White-headed Vulture, and juvenile Lammergeiers, that are usually the first to spot (or smell) a carcass. Higher-flying vultures may be unable to see the carcass itself, but they can see, and follow, the movements of the Searchers. Searchers are often forced aside by other vultures after feeding from a large carcass for only a short time; but it’s no terrible loss to them, for

the Searchers get most of their food from smaller carcasses and other food sources that the more numerous vultures tend to ignore. Each guild includes large species (Houston christened them “Rippers”), such as the Lappet-faced Vulture, King Vulture, and Monk Vulture, with the massive bills and sheer muscle needed to open large carcasses that smaller vultures cannot penetrate. These are also the most dominant birds, and are frequently dubbed “kings,” “chiefs,” and the like by humans. Their rule is largely benevolent, as they usually stand aside and let smaller vultures gorge themselves once a carcass is opened; they can avoid competing with their more numerous kin by feeding on skin and connective tissue, as well as upon the muscle and fat of large carcasses. The most numerous vultures in each guild are those, like the Black Vulture and the Old World griffons, that *do* depend on the meat of large carcasses. It is these birds (the “Gulpers”) that arrive in great numbers and engage in huge brawls for a piece of the pie, and it is the Gulpers that have made vultures famous for demolishing carcasses in a matter of minutes. They gather at carcasses in a characteristic pattern, memorably and accurately described by Henry Wadsworth Longfellow in his poem *The Song of Hiawatha*:

Never stoops the soaring vulture  
On his quarry in the desert,  
On the sick or wounded bison,  
But another vulture, watching  
From his high aerial look-out,  
Sees the downward plunge, and follows;  
And a third pursues the second,  
Coming from the invisible ether,  
First a speck, and then a vulture,  
Till the air is dark with pinions.

In the Old World, the guilds include smaller species (“Scrappers”), the Egyptian and Hooded Vultures, that cannot stand up to the larger vultures; but they can circle around the action, steal any stray bits of meat that are dropped by the other vultures, and occasionally squeeze in unnoticed among the larger birds to feed directly from the carcass.<sup>[41]</sup> A fully-functional vulture guild can dispose of all but the largest carcasses so quickly that land-bound carnivores are woefully unable to compete with it, and so are all but shut out of the scavenging struggle - at least during the daytime.

There generally is little competition between the different species in a guild, although obviously larger vultures can and will dominate smaller ones. Most of the competition takes place *within* species, and even then there are rules determining which birds eat first. Some vulture experts think that there is a fundamental difference in the rules of competition between New and Old Vultures, in the sense that the New World vultures depend more on individual recognition to establish a hierarchy, while the hierarchies of Old World vultures are based primarily on each bird’s degree of hunger.<sup>[42]</sup> Undoubtedly, hunger plays a part in determining who will dominate whom; a newly arrived vulture, with the fury born of an empty stomach, can successfully fight and displace a similar-sized vulture that is already sated and so has no reason to be aggressive. Age, too, has a role, with adults usually (but not always) dominant over immature birds, and “teenagers” in their third or fourth years can best neophytes that are just out of the nest. And, although the subject has been little studied, it may be that some vultures are simply more socially powerful than others; for sometimes a vulture that is indistinguishable from the rest, at least to human eyes, will walk right up to a carcass and begin feeding, without having to fight or threaten its way through the surrounding throng.<sup>[43]</sup> It would

be interesting to learn just what a vulture must accomplish to demand this level of deference from its cohorts; but for now, this remains one of the many mysteries surrounding the birds.

The guilds do their jobs outstandingly well; they are perhaps the single greatest factor ensuring that vultures are the most prevalent and successful scavengers wherever they occur. But while the roles that vultures may take in each guild are important, it should be emphasized that those roles are not static and absolute; without the competitive squeeze enforced by a full complement of vultures, a vulture species will readily take on roles that its physique can't begin to suggest. In parts of the Amazon rainforest where King Vultures are the only vultures, and likewise in desert areas of Arabia and North Africa where Lappet-faced Vultures scavenge with no company but that of their own kind, those Rippers will gather in large numbers at carcasses and behave much like Gulpers.<sup>[44]</sup> On islands where small vultures like the Egyptian or Turkey are the only species, they have carcasses all to themselves, and so must become Rippers and Gulpers as well as Searchers and Scrappers. And the Black Vulture, which with its small size and slender bill is most definitely a Scraper by form, has been the default Gelper of the Americas ever since the New World lost most of its large vultures in prehistoric times. There are also aberrant vultures, like the Palmnut Vulture and adult Lammergeiers, that seldom or never feed from large carcasses and so don't often come into contact with the guilds. And the guilds have one great disadvantage: the connections that make them work also make them, and the vultures that comprise them, vulnerable to disruption. Especially from humans.

Still, for all of its apparent and not-so-apparent drawbacks, the scavenging lifestyle does provide many advantages to those brave enough to lead it. One of the least obvious of these is a beastly quality that has drawn a great deal of attention lately: intelligence. There is some concrete evidence of vulture intelligence; the Turkey Vulture, for example, has one of the largest brains relative to its size of any bird outside of the eggheaded crow and parrot families.<sup>[45]</sup> Vulturine behavior also suggests highly developed minds, as the social organization of some species is highly complex, rivaling that seen in certain primates and mammalian carnivores. Black Vultures live in family groups that raise young, roost, and forage together, and that depend on cooperation to successfully compete with other scavengers. Not only do the apparently silent birds communicate to each other the locations of the most promising food sources,<sup>[46]</sup> but the family members of a Black Vulture "pack" will rush to the defense of their kin when they are intimidated or attacked by unrelated birds.<sup>[47]</sup> The griffons of the Old World also seem to practice sophisticated communication within their colonies, about both food sources and potential threats - to the detriment of biologists attempting to capture and tag them, who will quickly become *personae non gratae* to all of the griffons in a given colony and will be scrupulously avoided, even if only a few birds have actually witnessed them capturing griffons.<sup>[48]</sup> At their nightly communal roosts, the griffons share information with each other about food sources, meaning that if just a single bird from a griffon colony finds a carcass one day, it can safely be assumed that the entire colony will show up at the carcass the following day.<sup>[49]</sup> There's even evidence that large groups of griffons feeding on carcasses will post lookouts, probably in order to prevent the vultures from being surprised by potentially dangerous mammalian competitors.<sup>[50]</sup> Lappet-faced Vultures have a remarkable and little-studied intraspecific hierarchy that depends on individual recognition; at carcasses, some Lappet-faces are clearly already acquainted with each other, and avoid fighting by exchanging placatory gestures, but strangers will seek each other out and engage in combat to determine which bird is stronger.<sup>[51]</sup> This behavior is very similar to that seen in mammalian carnivores, like jackals, that scavenge frequently, but that still claim territories and so can't tolerate all interlopers. People who work with vultures in captivity are adamant that they are among the smartest of all birds, quick to learn new tasks and quicker to adapt to new situations.<sup>[52]</sup>

Although the centuries-old tradition of disparaging the intelligence of scavengers might lead one to think otherwise, this evidence of smarts really isn't so surprising; a cursory look at the lifestyle of a vulture shows that it must be able to learn, adapt, and think in order to survive. To give just one example: a griffon dwelling in the plains of Africa must search long and hard for a large carcass at least once a week. To do so, it must be able to accurately perceive the flying conditions of the day: where the best thermals lie, whether it is likely to warm up or cool down, if a thunderstorm is imminent - and then it must ride the air currents, switching from ascent to descent at the most opportune moments to cover the greatest searching area. If it finds a carcass, it must note whether any other vultures are present, how large the carcass is, whether any mammalian carnivores are present; and, based upon all of those factors, decide whether it is worthwhile (in terms of risk to itself and energy expended) to descend to the carcass. If it chooses to do so, it may have to contend not just with other vultures, but with a plethora of scavengers ranging from blowfly maggots to Lions and humans, and it must know, or learn, how to deal with each of these competitors. It has to do all of this through good times and bad, year after year, for its entire long life. Small wonder that many societies have thought vultures to be among the wisest of animals; but let's not leap ahead of things.

Vultures are indeed odd creatures. Like many other odd creatures, they are too often taken for granted. But even when they are, their dazzlingly diverse manifestations in the human mind, and the explosions of interpretation and creation left in their wake, must inevitably leave even the most dedicated vulture-hater bewildered, impressed, and perhaps even a little frightened. As you soon will be . . .



# Chapter 2

## Black Wings at the Dawn: Vultures in Prehistory

The existence of such a large raptorial bird in company with the “Pigmy Elephant” . . . is certainly suggestive that the old fable of the “Roc” carrying off the Elephant may possibly have had a foundation in fact.

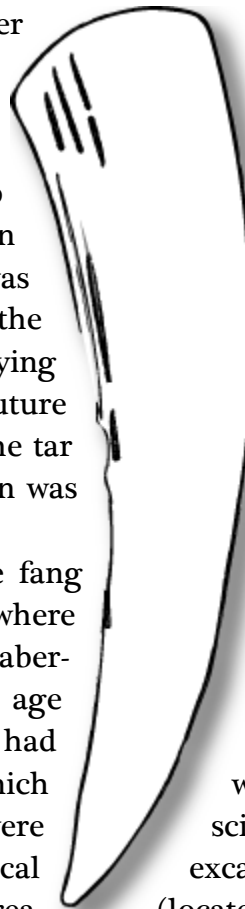
-Richard Lydekker, “On Some Large Extinct Birds From Malta,” *The Proceedings of the Scientific Meetings of the Zoological Society of London*, Vol. XXVIII, 1890

Among the many interesting forms of vertebrates taken from the Quaternary asphalt of the Rancho La Brea beds in Southern California, there have appeared several specimens of a very large bird. . . . a raptorial bird of gigantic size . . .

-Loye Holmes Miller, “Teratornis, A New Avian Genus From Rancho La Brea,” University of California Publications, *Bulletin of the Department of Geology*, Vol. V, 1909

For far longer than anyone could remember, the asphalt deposits of the Tar Ranch (better known in both Spanish and English as “Rancho La Brea”) of southwestern California had been quarried for their valuable tar-like black asphalt. The Amerindian inhabitants of the area had scooped asphalt from the pits for many centuries, using it to caulk their canoes and waterproof their baskets, as well as to make an all-purpose glue. Californian settlers of European descent pulled the petrified goo from the ground on a much larger scale than any seen before; by the late 19th century, the asphalt was mined by the ton and shipped as far away as San Francisco to pave its hilly streets. The miners of the Rancho La Brea operation soon discovered what countless patrons had learned before them: that when digging in the pits, from time to time, age-browned bones of birds and mammals would be found embedded in the sticky tar and of exhaustion or starvation and leaving miners to unearth. If anyone suspected bones - specifically, that some of them might be more ancient and unusual than was commonly believed - they kept their suspicions to themselves.

Until 1875, that is, when a large fang of the Boston Society of Natural History, where recently discovered, but long extinct, Saber-powful predators that had stalked ice age and it stood to reason that if the tar had then it had also preserved others, which after the turn of the century, the pits were geologists; then paleontological surprisingly convenient location of La Brea



scale than any seen before; by the late 19th ton and shipped as far away as San miners of the Rancho La Brea operation of the pits had learned before them: that time, age-browned bones of birds and hard clay and sand.<sup>[4]</sup> Little was thought only to be expected that an occasional water overlaying the sticky tar and of exhaustion or starvation and leaving miners to unearth. If anyone suspected bones - specifically, that some of them commonly believed - they kept their

excavated from the pits was presented to it was recognized as a canine tooth of the toothed Cat - one of the largest and most North America. This was a bona fide *find*; preserved one skeletal remnant for so long, would be well worth digging for. Shortly scientifically investigated and surveyed by excavations began in earnest. Befitting the (located only about 7 miles (11.3 km) from the



center of Los Angeles), teams based in Southern California led the way, as parties from most every prominent university, academy, and museum in the area arrived in turn to sift through the tar.<sup>[2]</sup>

Ironically, the same material that would be used to bury most of the surrounding area beneath one of the largest paved expanses on earth proved to harbor an invaluable record of the area's zoological past, enabling researchers to deduce what the place had been like long before European settlement; indeed, before it had hosted humans of any kind. From 11,000 to 38,000 years ago, the Los Angeles area was nothing more or less than a western outpost of the ice age North American savanna, with wildlife to match. The thousands of fossils discovered in the tar proved to represent a fascinating mix of species living and extinct, known and unknown, and provided a remarkably detailed record of the lost world that had produced them. Where else but at La Brea could one find California Condors alongside mammoths, Coyotes nestled near giant ground sloths, and Saber-toothed Cats jostling for space with camels? This assemblage was made all the more bizarre by the preponderance of carnivorous animals, which are usually much rarer than herbivores in the fossil record. About 90% of all the mammal fossils recovered from La Brea were those of carnivores, as were 70% of the bird fossils. It didn't take long for an explanation of this particular geological foible to emerge: when herbivorous animals wandered into the tar and were stuck, their struggles would attract many predators, which would also get stuck as they attempted to attack their helpless prey; and the carcasses of all concerned would attract still more scavengers, which too would be sacrificed to posterity in failed pursuit of an easy meal.

The bird fossils of the pits - more than 100,000 separate specimens, to date<sup>[3]</sup> - were doubly interesting, as many of the species represented had never been discovered anywhere else. Before the excavations at La Brea, no self-respecting scientist would entertain suppositions that North America had once harbored an eagle that stalked its prey on long, slender legs like those of a heron, or a huge stork that likely had haunted the carcasses of large mammals like a Californian Marabou, or a raptor that looked as though it had died midway in the process of evolving from an eagle to a vulture. But the asphalt pits yielded up the bones of all of these birds, and more. An even stranger denizen of La Brea was revealed by a few skull fragments of what had clearly been a very, very big bird. When enough material was found to piece together what a complete skull of the creature had looked like, it was deduced that it would have been far larger than the skull of North America's biggest living vulture, the California Condor, and fully twice the size of the skull of a Bald Eagle. And, judging from its massive hooked bill, this bird was definitely a meat-eater. It seems appropriate that Loye Miller, the paleontologist who first described the species, gave it the genus name *Teratornis*, meaning "monster bird."

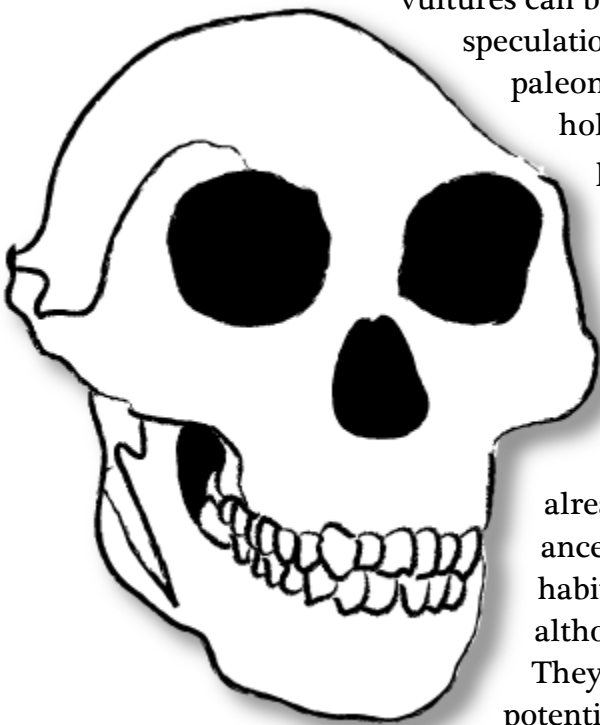
Many more teratorn fossils have been dug up since those first few fragments appeared - enough for entire skeletons to be put together - and much more has been learned about *Teratornis merriami*, the species to which those fragments belonged. Humanity now knows with some certainty how big a living teratorn was, how it moved on the ground and in the air, and how it might have looked to eyes lucky enough to see it. Educated guesses can even be made about how the monster birds behaved, about what they ate and what other creatures they interacted with and where they chose to live. But many things about the teratorns will always be mysteries, matters for debate and supposition that can never be granted closure; because, as paleontologists would be the first to admit, the amount of knowledge that can be learned from fossils is inherently limited. There are some things that fossils simply can't teach us.

This gap of knowledge is astonishing, perhaps even inexcusable, when one considers that humans almost certainly once knew teratorns as fellow living things. There was a time when humans

saw the monster birds soar in the sky, heard the air rush through their feathers, and perhaps even tasted what it was like to eat at the same table (so to speak) with them. We will learn how these experiences fell by the wayside, and how our knowledge of the teratorns came to be marred by a discontinuity of thousands of years, but that particular explanation forms the conclusion of this chapter's tale. To trace the inception of the human-vulture relationship, we must look back much further in time; back when the La Brea tar pits were not yet even an imperceptible bubbling beneath Southern California.

Like the beginnings of many other lengthy and stormy relationships, those of the bond between human and vulture have now been forgotten. But, with a bit of detective work, we can trace them. Though a gap of many millennia separates us from the earliest of our kind - the most ancient creatures that can plausibly be called "human, or nearly so" - their world and its long-disbanded flying scavenger squad can still be partially reconstructed; and their relationship with their contemporary

vultures can be speculated upon, with a fair amount of evidence to support those speculations. There is general agreement among anthropological paleontologists (henceforth referred to as "anthro-pals") that East Africa holds the fossils of the earliest creatures that could be considered proto-humans. These dawn people belonged to the genus *Australopithecus*, and the best-documented of them, dating back to almost 4 million years ago in the Pliocene epoch of time, belonged to the species *afarensis* (left).



In terms of habitat, the dawn people were fence-sitters; they inhabited the fringes of the ancient tropical forest at the heart of Africa, alternately taking to the trees or hobbling none-too-confidently across the open ground. Australopiths had already changed greatly from the other apes, for unlike their ancestors (and our current close relatives among the great apes) they habitually stood upright and could walk bipedally for long distances, although their legs were proportionally much shorter than ours.<sup>[4]</sup> They still spent much time in the trees, not least because they were potential prey for many land-dwelling carnivores. For the hundreds of

thousands of years of their existence, the dawn people made a decent and largely herbivorous living along the forest edges, subsisting mostly on fruit, nuts, and invertebrates, much as living Chimpanzees do. However, they must have been more carnivorous than Chimpanzees, if only because the forest fringes that they called home were far less rich in protein-heavy plant foods than the deep forest habitat of most Chimpanzees, but far more rich in meat.<sup>[5]</sup> Still, the dawn people are thought to have obtained no more than 10% of their caloric intake from meat of any kind,<sup>[6]</sup> and there is no evidence to suggest that they often killed large animals - i.e., those over 50 pounds (23 kg). They probably did kill small antelopes, rodents, and monkeys, as Chimpanzees still do today; and there are other ways to obtain meat besides killing live prey. Could the dawn people also have been scavengers?

As readers are surely aware, scavenging is all too often described as a lazy, obscenely facile way of obtaining meat. After all, scavengers only find already-dead animals, often in poor condition, and eat them; not very exciting or inspiring, compared to the stalking, chasing, and killing that predators engage in. Even some anthro-pals seem to think that having a scavenger in the human family tree would be like having a deadbeat, freeloading uncle whose exploits shame all of his relatives and are

never discussed with outsiders. And so, the type of scavenging practiced by vultures is typically belittled in anthropological literature as *passive scavenging*, which would seem to imply that the scavengers in question merely loll about waiting for something to drop dead in front of them. That grossly inaccurate term won't be used any further in this book; *wander scavenging* is much more descriptive of the effort required to make a living by feeding on carrion.

By whatever name, wander scavenging isn't a very reliable method of obtaining meat for land animals. It requires much patience, sustained activity, and hard work, which is why inherently lazy and impatient creatures like modern humans and Lions are so bad at it. Africa's Spotted Hyena is very famous as a scavenger, and it's much better adapted for wander scavenging than most other carnivores, with an excellent sense of smell, the ability to lope along for great distances without tiring, and the willingness to eat almost anything that it comes across; even so, a Spotted Hyena usually gets no more than a tenth of its food by wander scavenging.<sup>[7]</sup> Our closest living relatives, the Chimpanzees and Bonobos (Pigmy Chimpanzees), wander scavenge very rarely, if ever, and Chimps are said to be largely uninterested in eating animals that they find already-dead.<sup>[8]</sup> Chimps and Bonobos get most of the meat that they require from hunting smaller animals; but as they are forest dwellers, rarely venturing out onto the plains, their foraging behavior is not the same as that of humans past or present.

When the dawn people of the Pliocene originally emerged from the trees and crept cautiously out onto the plains, one of the very first sights to greet their eyes would have been a large, hook-billed, bald-headed bird soaring effortlessly in the warm African sky. If they were curious enough to follow that bird to its destination, they would have found a bounty of meat ripe for eating; for the bird was a vulture, and it had inadvertently led them to a carcass. This was the single most fruitful activity that the dawn people could have undertaken if they wished to enjoy the bounty of wander scavenging: they could have watched and trailed vultures. Forest-living animals cannot do this, since there are usually few if any vultures in their habitat; besides, with so many trees obstructing any view of the sky, it would be impossible to keep the birds in sight and follow them. It's much easier to trail vultures in open habitats, especially flat plains in a tropical climate like Africa's. Vulture-trailing is a prominent pastime among many living land carnivores, including modern humans. Ask any big-game hunter the easiest way to find a dead or mortally wounded animal that has vanished from sight, and they'll tell you, "By watching the vultures." It's with good reason that some Amerindians refer to vultures as "tracks in the sky"; a vulture is a large, (usually) slow-moving, easily spotted bird, and a vulture that has seen a carcass and is diving towards it, or is circling above it, can with experience be distinguished from a vulture that is only flying aimlessly. In Africa, a large carcass will often attract hundreds of griffons, circling above it in a towering column that is visible for great distances in all directions. Even if sight is obscured, the characteristic roaring sound of air rushing through a huge bird's flight feathers can signal its presence to those on the ground; sleeping hyenas have been seen to be awakened by this sound, and then to charge after the diving vulture that awoke them as fast as they could.<sup>[9]</sup> The ability to recognize vultures as a sign of nearby food is so important that it seems to be instinctive among African carnivores like jackals and hyenas; jackal pups only a few months old recognize the sight of flying vultures and will scurry after them on their stubby legs.<sup>[10]</sup>

Of the living Old World vultures, only one species (the Pondicherry Vulture of South Asia) makes a habit of living in dense forest; and though it's possible that its African relatives, the Lappet-faced and White-headed Vultures, had ancestors that dwelled in African forests with the australopiths, any such birds would likely have been unobtrusive and thinly spread. Australopiths probably had little experience of vultures in their eons among the trees. Therefore, the earliest of them did not

instinctively recognize that vultures were aerial signal flags for the presence of meat; but they were smart enough to learn this. To humans with slow running speeds and poor senses of smell compared to those of the true carnivores, vultures were of extreme importance in the search for carrion. Indeed, they still are; in one study of wander scavenging by modern hunter-gatherers in East Africa, well over half of the carcasses that the humans found were located by trailing vultures.<sup>[11]</sup> Following the birds was a roll of the dice, with no way to be certain exactly what the vultures were flying to; but some of the carcasses that the vultures found would have been large, fresh, and free of large carnivores. Such a windfall could mean the difference between starvation and survival for a band of dawn people facing lean times. Our most distant ancestors did have something like angels on their shoulders, though those angels could charitably be described as raptures in wrinkled skin. And, as improbable as it may sound, this odd association was the beginning of the vulture-human relationship; everything that will follow in this book can be traced back to a moment millions of years ago when a weird-looking little ape first decided to run after a weird-looking big bird.

Compared to the simple see-and-run approach employed by true carnivores when following vultures, early human vulture-trailing was likely more complex and nuanced. As human eyesight was better than that of most carnivores (during the day, at least), and they could see in color, they probably were able to distinguish one type of vulture from another, and to separate vultures from other large birds. This last is something that carnivores seem to be incapable of; hyenas have been seen to run after non-carrion-eating storks as though they were vultures, only to realize their mistake when they caught up with the birds and then slink away, discouraged and still hungry.<sup>[12]</sup> In today's Africa, experienced observers of vultures are often able to tell when the birds have found a carcass by observing their movements and behavior; for example, a single vulture flying at low altitude in the morning is likely headed towards a carcass, and vultures that are perched in the lower branches of a tree rather than the branches in the tree's crown are likely overlooking a carcass.<sup>[13]</sup> Through experience, the dawn people may have even been able to predict what type and condition of carcass a given vulture would lead them to: a Scrapper like a Hooded Vulture would likely be headed for a carnivore kill or a carcass already mostly devoured, a Ripper like a White-headed or Lapped-faced Vulture for a small carcass or a fresh large carcass, and a Gulper like a griffon for a large carcass already discovered by other scavengers. Of course, a band of dawn people that was literally starving for meat would not bother with such fine distinctions; *anything* that signaled nearby carrion would be a veritable godsend in desperate times. But spotting the vultures and trailing them to their meal comprised only half the battle; there still remained the touchy business of dealing with the birds at the carcass.

Regardless of its size, strength, or intelligence, any scavenger has to deal with competitors, and a large carcass is a popular and potentially dangerous gathering place for scavengers of all kinds. At carcasses, creatures that would seldom encounter each other in any other situation are thrown into uneasy proximity, and sometimes into outright conflict. Relationships between species that are inviolable elsewhere are broken and remolded: animals that are ordinarily bold and dashing become cautious and hesitant, and vice versa. In Australia, Wedge-tailed Eagles may frequently prey upon feral Red Foxes and Cats; but at a large carcass, those mammals will often dominate or even drive off Eagles that attempt to intrude on the feast.<sup>[14]</sup> There is evidence that African Lappet-faced Vultures sometimes kill jackals; yet jackals can often keep all vultures, even the huge Lappet-faces, from feeding on a carcass.<sup>[15]</sup> Size and strength count for a lot at a carcass, but so do bluff and aggression. In these unpredictable clashes, all scavengers must make quick decisions - about whether to fight, retreat, or flee altogether - upon which their lives as well as their stomachs may depend.



The most formidable land scavengers in Africa today are Lions and Spotted Hyenas, both of which have existed in Africa for several million years. Fortunately for dawn people and vultures alike, both Lions and Hyenas are predominantly nocturnal. During the daytime, they're absent from carcasses more often than not; but when they are, smaller scavengers have little chance of competing with them. Lions, the tyrants of beasts, are utterly intolerant of other scavengers, and would have been far too dangerous for the small and unarmed dawn people to approach. If vultures led proto-humans to a Lion kill, or to a carcass that had been found and claimed by a pride of Lions, we can scarcely imagine the indignation that the dawn people would have felt towards the birds as they turned and fled. (But this must not have happened very often, or they wouldn't have continued to follow the vultures.) Africa had several more species of big cat during the Pliocene, and if they were sociable like Lions, it's reasonable to assume that they held similar supremacy over their competitors.

Pliocene East Africa also harbored another formidable scavenger: the Giant Hyena, which was as large as a big male Lion. It's though that this animal was specially adapted for pirating the kills of other carnivores, especially big cats, and it must have been a dangerous threat to the australopiths.<sup>[16]</sup> The much smaller Spotted Hyenas were dangerous as well, not least because an entire Hyena clan numbering 60 or more individuals might gather at a carcass. Neither australopith nor vulture stood any chance of feeding from a clan-claimed carcass; however, sometimes only a few Hyenas might appear. For all their reputation of crude brutality, Hyenas are actually much more obliging than Lions in allowing other scavengers to feed from a carcass; not infrequently, vultures will eat from a carcass while the Hyenas doing the same make no effort to attack them or chase them off.<sup>[17]</sup>

Yet sometimes fortune smiled upon the dawn people, and the only other scavengers that the dawn people met at a carcass were the vultures that had led them there. Even if australopiths had to retreat from hyenas and big cats, and probably from exceptionally bad-tempered jackals, surely they would easily have been able to drive vultures away; at least, that seems to be an unquestioned assumption among the anthro-pals. The vultures themselves may have held a different opinion. Chances were that by the time a band of vulture-trailing australopiths managed to find the vultures' destination, there would already be many of the birds there. In the present day, a large group of vultures can in fact intimidate mammalian scavengers; jackals that can dominate a single vulture will often shy away from a large group of them, and 100 or more griffons can usually keep at bay any scavengers save Spotted Hyenas and Lions. Even modern-day humans, relative giants that they are, aren't guaranteed a free meal when encountering large vultures at a carcass; very large aggregations of the birds, on the order of a thousand or more, may behave aggressively when approached by people.<sup>[18]</sup> The biggest and most aggressive vultures are not used to having to defer to other scavengers, and may well decide to stand up to people in confrontations – especially if they're unfamiliar with humans, as the australopiths' feathered rivals probably were. If you've seen a large vulture up close in a zoo, you'd probably agree that it is an impressive bird indeed, not a creature you'd like to needlessly provoke into a fight. Now imagine if you were only half your size; and if there was not just one vulture, but a seething mass of them; and that merely by approaching them, you were provoking a fight. And, of course, there would now be no metal bars or wire mesh separating you from those razor-sharp bills, flailing wings, and cruel talons.

Keep in mind that compared to modern humans, the australopiths were runts. The famed specimen of a female *A. afarensis* known as "Lucy," who is thought to have been fully grown when she died, was about three feet, five inches (1 m) tall and weighed no more than 60 pounds (27 kg);<sup>[19]</sup> a Lappet-faced Vulture reared up to its full height could easily have looked her directly in the eye, and she would likely have turned and ran if one did so within striking distance. The adult male runts were



considerably larger, but a big vulture (let alone dozens of such) would still be an intimidating sight to them, especially if it had its wings spread in a threat posture and was strutting ominously towards their band of would-be scavengers. The courage of the dawn people would not be bolstered by their familiarity with large birds of prey from their eons in the forests – nor by the fact that they were familiar with raptors not as competitors, but as predators.

Birds of prey are among the most ancient, pervasive, and formidable predators of primates, in Africa and elsewhere in the world; and by the time the australopiths appeared, their ancestors had likely been under threat from raptors for millions of years. A rare and valuable australopithecine skull, discovered in southern Africa in 1925, provides a clue as to how early humans related to birds of prey. The skull, of a small child belonging to the species *A. africanus*, was found in a deposit along with the bones of other medium-sized to small animals. The implication was that it had been discarded in a predator's refuse heap; but, at first, no one could explain what predator might have been responsible for the kills. Then the paleontologists Lee Berger and Ron Clarke noticed that the puncture wounds on the skull were very similar to those on the skull of a young baboon known to have been killed by a Crowned Hawk-eagle, a big and exceptionally powerful forest predator that today regularly preys on monkeys. Berger summed up the predatory situation for the dawn people thusly: "They not only had to watch every bush they passed by, every rock they turned over, and every tree they walked under, but now we know they also had to keep one eye on the sky."<sup>[20]</sup>

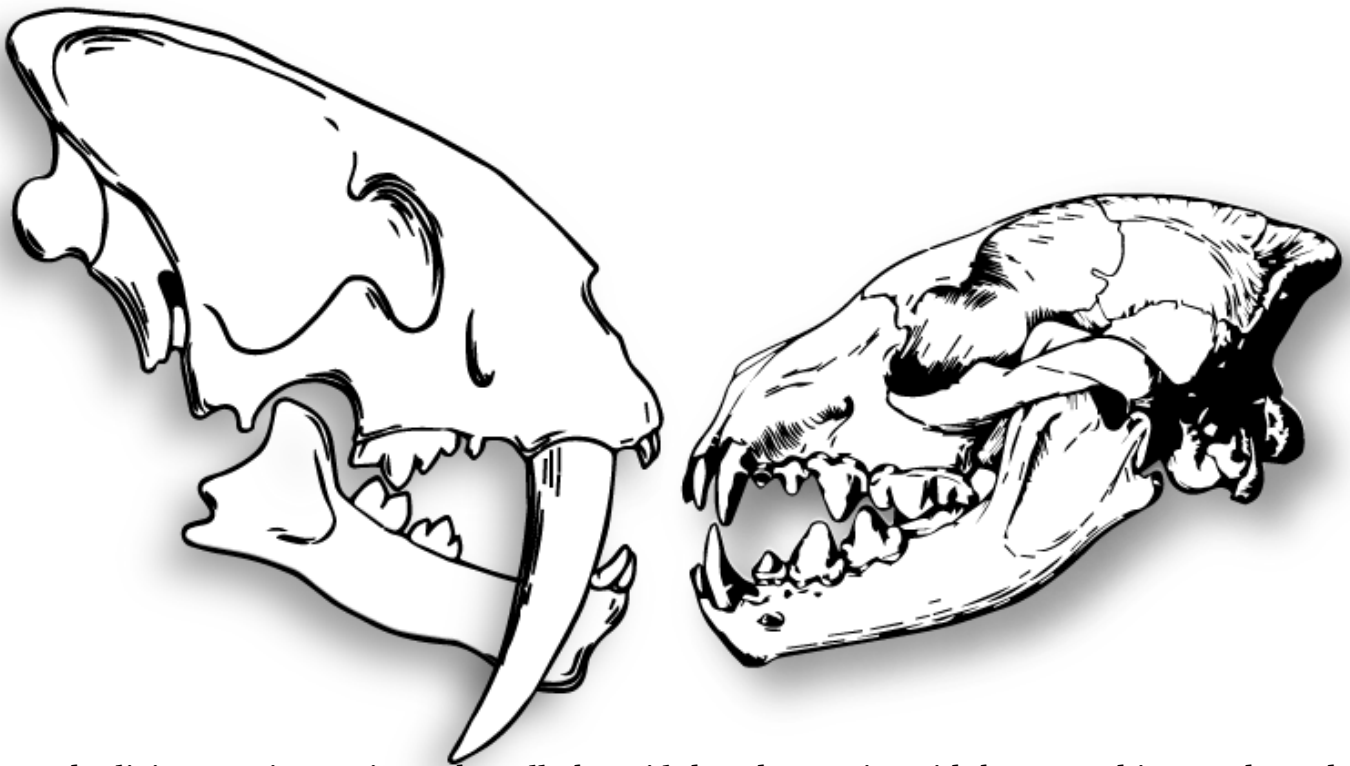
The vulture fauna of Africa has probably changed a little since the heyday of *Australopithecus*, but there are two living African vultures that could have been potential threats to the australopiths: the Lappet-faced Vulture and the White-headed Vulture. There are eyewitness accounts of White-headed Vultures attacking and killing prey as large as small antelopes,<sup>[21]</sup> and circumstantial encounters have suggested that Lappet-faced Vultures occasionally kill animals as formidable as Golden Jackals,<sup>[22]</sup> an old, injured, or very young australopith would be little challenge by comparison. Additionally, both of these vultures are thought to get much of their food by pirating (stealing) kills from eagles. Even the largest eagle in Africa, the Martial, may be attacked and forced to relinquish its prey by the Lappet-faced Vulture.<sup>[23]</sup> Both eagles and vultures were much more common in the time of the dawn people; and any band of australopiths that periodically saw one of their own killed by an eagle must also have occasionally witnessed the theft of the corpse by vultures, which would then devour it before their wide eyes.

All in all, I think the proto-humans could be excused if they were hesitant to approach large birds of prey in any situation. Facing down large vultures at a carcass certainly must have been a daunting prospect for them. But the proto-humans had one considerable advantage over other scavengers: their weapons. Rock-throwing can be surprisingly effective in driving even large animals away, and cooperative rock-throwing is all but unbeatable when it comes to intimidating other creatures. A troop of rowdy dawn people, all throwing sticks and rocks (and other, less mentionable projectiles) while screaming wildly would have been intimidating enough to drive away all but the largest scavengers. The first band of australopiths to drive vultures from a carcass could celebrate a victory, by proxy, over a predator. Possibly the first such victory in human history; but certainly not the last.

The relationship between vultures and their land-bound counterparts is not entirely one-way, with the ground-pounders only leaching off the labors of the wind-skimmers; vultures do recognize and approach the kills of mammalian carnivores (although, contrary to popular belief, they get little food from such kills), and they will seek out the cackling of Hyenas at carcasses.<sup>[24]</sup> But with occasional exceptions, the kills of mammalian predators are considered to be unimportant sources of food for

vultures in the present day, for the simple reason that these predators are almost invariably dominant over scavenging birds, and when they voluntarily abandon their kills, there is usually little left for scavengers. However, the modern-day suite of mammalian carnivores is not truly representative of the suite of carnivores that humans and vultures alike grew up with for most of their evolutionary history. Not only are today's carnivores atypically scarce and lacking in diversity, but they don't count any sabertooths among their number.

Sabered teeth have evolved independently among mammals several times, in all cases as an adaptation for killing prey larger than what the carnivore with the teeth could otherwise hope to take. The greatly elongated and flattened canine teeth of sabertooths were specially adapted for killing large animals, although there has been much inconclusive debate regarding just how the sabers were used. The drawback of such specialized teeth was that they were *only* useful for killing; unlike normal canine teeth, they were essentially useless for eating. Not only that, but the other teeth (carnassials and molars) of sabertoothed mammals tended to be specially adapted for slicing meat, but were too sharp-edged and fragile to be of much use in masticating tougher foods, like bone.<sup>[25]</sup> The end result was that though a sabertooth could kill large prey much more efficiently than other carnivores, it would then be left with a carcass that it was dentally unable to consume in its entirety. And that's where the bone-crushing carnivores come in; alongside the sabertooths, there were also several independently evolved lineages of mammalian carnivores with flatter, more robust teeth apparently adapted for bone-crushing, rather than meat-slicing. See [below](#), and guess which is which.



Among the living carnivores, it can broadly be said that the species with bone-crushing teeth, such as hyenas, Wolverines, and the larger members of the dog family, are more apt to scavenge than those species with meat-slicing teeth – although bone-crushing carnivores also kill live prey when they can. It's been suggested by some paleontologists that the sabertooths evolved in concert with the bone-crushers; the former carnivores, primarily predatory, killed large animals for choice cuts of meat, and the latter carnivores, predominantly scavengers, ate what was left.<sup>[26]</sup> The most obvious inference gained from these fossils is that when sabertooths were common in most of the world, predators' kills were more useful sources of food for scavengers than they are today. If this interpretation is correct,

then the kills of sabertooths also provided much potential food for vultures – and the australopiths who trailed them.

When a more aggressive approach is called for, vultures may attempt to pirate the kills or finds of the smaller mammalian carnivores. Lappet-faced Vultures are able to [pirate from jackals](#) in certain situations, and Cheetahs, known for speed rather than strength, will sometimes (but not always) abandon their kills when faced with a large group of determined griffons.<sup>[27]</sup> The small animals hunted by the dawn people would not provide much of an attraction for most vultures, which were on the lookout for bigger game. However, the vultures most likely to be attracted to small carcasses were also the most likely predatory threats to the dawn people. Despite their relative rarity, White-headed Vultures and Lappet-faced Vultures are much more commonly seen at small carcasses than are the griffons, and both species are thought to be inveterate pirates of the predators that kill these small animals.<sup>[28]</sup> Quite possibly their ancestors were sometimes able to pirate prey from australopiths, especially if the vultures encountered the dawn people alone, rather than in groups. The proto-humans may have had to abandon their hard-won kills when potential predators approached them with clear aggressive intent; such were the perils of venturing onto the open and thickly crowded plains, where no carnivore could eat in peace without fighting for that right.

Aside from that threat of vulturine piracy, this early contact between dawn people and vultures constituted a “commensal” relationship, meaning that only one party, the australopiths, was likely to derive much of a benefit from the association. Overall, the existence of a thriving vulture guild on the African savanna helped the dawn people far more than it hindered them. Not only did the birds inadvertently help them to find carcasses, but according to present-day evidence, the mere presence of vultures induces carnivores to kill more often than they otherwise would.<sup>[29]</sup> Though a single vulture eats insignificant amounts of meat compared to a Lion or Spotted Hyena, the sheer numbers of the birds (especially of the griffons), combined with their efficiency and speed in finding carrion, ensures that land carnivores will at best have very limited opportunities for wander scavenging. Therefore the mammalian predators must kill prey much more often than they scavenge, and the resulting wealth of opportunities for piracy ensures that even meat-eaters like the dawn people, which were neither efficient wander scavengers nor skillful predators of large animals, were still able to find enough meat to sate themselves.

Piracy was and remains the forté of scavengers that cannot wander scavenge very well; Chimpanzees, for example, will readily pirate kills from predators such as baboons and Leopards, using tactics much the same as those ascribed to the dawn people.<sup>[30]</sup> It's also a frequent tactic of those scavengers that *are* successful at wander scavenging; almost all vulture species, even the relatively unaggressive ones, have been documented stealing food from other birds. Today, the East African savanna is something of a pirate's paradise; a Spanish Main of carrion, if you will. Spotted Hyenas and Lions will pirate from each other, as will Leopards and Hyenas; Hyenas will also pirate from Cheetahs and Wild Dogs.<sup>[31]</sup> On a smaller scale, Lappet-faced Vultures and jackals will pirate from each other, vultures will pirate from other vultures, and from eagles; and Marabou Storks will pirate from just about anything that can't swallow its meat quickly enough. One could argue that land animals following vultures and driving the birds from a carcass that the birds discovered first is also piracy; certainly it would be from a vulture's point of view. In the time of the dawn people, there must have been even more opportunities for pillage, as Africa then supported more predators and much more potential prey and carrion.

For all their limitations in the field of wander scavenging, both living and extinct humans more than make up for them in their expertise at piracy. It was probably a relatively simple matter for

a band of australopiths to pirate kills from carnivores smaller than themselves, from larger, but solitary, carnivores like Cheetahs and Leopards, and maybe even from packs of Wild Dogs. But an attempt to steal from a pride of Lions or a clan of Spotted Hyenas could rapidly become disastrous, and probably was not often attempted. Much like its high seas namesake, piracy is a dangerous game; most of the interactions that occur between different species of mammalian carnivores result from acts of piracy, and many of those interactions end in violent death for one or more of the competitors.<sup>[32]</sup> When Lions kill Hyenas, or vice versa, the killing doesn't really qualify as predation, since the carcass of the dead animal is usually not eaten by its killers. Such killing is nothing less than deliberate elimination of the competition, fuelled by millennia of vicious and deadly rivalry over limited and highly coveted resources.

By now, you've probably deduced for yourself that scavenging is far more complicated, unpredictable, and dangerous than common knowledge has led us to believe. It may thus seem strange that it was one of the strategies adopted by the dawn people to feed themselves; but scavenging was actually not too dissimilar to the proto-humans' more traditional feeding strategies of fruit- and nut-eating. With those strategies, as with scavenging, the sought-after food resources are limited in supply and far-flung in space and time, and as such are in great demand. Therefore, any creature that depends on them for survival requires intelligence, an opportunistic mindset, and a certain amount of sociability in order to successfully compete for them. Among the australopiths, the demands of wander scavenging and piracy probably greatly encouraged their interpersonal coordination and cooperation – much as the communal roosts of the more social vultures boost their own scavenging prowess.<sup>[33]</sup> Scavenging on large carcasses in open habitats may be one of the primary drivers for social behavior among carnivorous animals, as it apparently has been for humans, Lions, Spotted Hyenas, and vultures. The great difference between fruit- and nut-eating and scavenging is that practitioners of the former diet are not known for overtly violent attitudes towards competitors, but carnivorous animals most certainly are. In order to cope with the ultra-competitive scavenging lifestyle, vultures have become huge (by bird standards), tough, intelligent, sociable, and aggressive. In a remarkable and definitely not coincidental parallel, this is much the same evolutionary course taken by humans; since they first became dues-paying members of the Savanna Scavengers, Pirates, and Predators Guild, they became larger, smarter, better-organized, and much bolder, the latter especially during the daytime.<sup>[34]</sup> They learned how to fight and win against dedicated carnivores, even those which were genuinely dangerous predatory threats. Their weapons, teamwork, and ability to learn transformed unequal predator/prey relationships into more equal scavengers' rivalries. And the ultimate success of their endeavor can be measured merely by observing just how reluctant most African carnivores are to contest carcasses with modern humans, regardless of whether those humans carry weapons.<sup>[35]</sup>

There was one more situation in which dawn people would often have encountered vultures, one which arguably has an even greater relevance for modern humans than primeval carrion-eating: the death of one of their own. Today, vultures quite simply *are* death in the minds of many people, and this perception is indisputably the single most important facet of the human-vulture relationship. How much *more* important it must have been for the australopiths, to whom death was not the distant, seldom-seen experience that it is for modern humans dwelling in the industrialized world. Proto-humans lived under mortal threats from a variety of natural disasters, an infinite array of accidents, any number of diseases, venomous snakes and invertebrates, and predation. The dawn people fell right into the size range of possible prey for at least eleven different contemporary East African mammalian carnivores,<sup>[36]</sup> in addition to large reptiles like crocodiles and pythons - and the



raptors, of course. Though their bodies were small compared to the great mammals of the plains, the corpse of an australopith was certainly substantial enough for vultures to spot, approach, and consume. Australopiths that expired from illness or injury likely died most often at dawn, the coldest time of the day; and after they drew their last breaths, vultures would be the first scavengers to appear, taking to the first thermals of morning to wheel over the lifeless body. The question of how vultures were viewed and treated in this situation hinges largely upon how these dawn people viewed - and treated - their dead. Were dead australopiths simply left where they fell without a second thought; or were they mourned over for a time, perhaps even given proto-funerals?

This question stretches the limits of our understanding of human consciousness; as such, it is very controversial, with no definite answer. In 1928, the German philosopher Oswald Spengler opined that, "Man is the only being that knows death; all others become old, but with a consciousness wholly limited to the moment, which must seem to them eternal. They see death, not knowing anything about it."<sup>[37]</sup> Observations recorded since that statement was written suggest otherwise; some non-human animals do appear to recognize dead individuals of their own species. A gap of millions of years and a great gulf of brainpower separates us from the australopiths; since they are so alien to us, looking at the behavior of some of the more intelligent living mammals may help us to understand them better.

Recognition of dead infants, at least, is well established among primates. There are many field observations of monkeys such as baboons and macaques carrying dead infants along with them, sometimes for days after death. Attraction towards and care for dead infants is found in both Old and New World monkeys, which diverged in evolution about 40 million years ago, suggesting that this behavior far predates any human species.<sup>[38]</sup> On the other hand, monkeys can be surprisingly blasé about the presence and significance of the dead. In India, a large troop of Hanuman Langurs under observation was seen to frequent a communal sleeping site, despite the recent deaths of most members of the troop at the site from contaminated drinking water. The decomposing corpses of their dead kin strewn about the site did nothing to dissuade the monkeys from using it, nor did the vultures and crows that consumed those corpses in plain sight.<sup>[39]</sup>

Evidence for recognition of the dead is somewhat less ambiguous among our closest living relatives, the great apes of Africa and Asia. While studying the Chimps of the Taï Forest in Ivory Coast, West Africa, the biologists Christophe Boesch and Hedwige Boesch-Achermann and their assistants witnessed the deaths of several of their study subjects from accidents or Leopard attacks. In the aftermath of one of the latter incidents the marauding Leopard was immediately driven off by a male Chimp of the same troop; and shortly afterwards, a dozen Chimps gathered around the body of the victim, inspecting it, smelling it, and grooming it. The site of the fatal attack, which still bore traces of blood, was "inspected with great intensity" by several of the Chimps, and the body itself was gently touched and shaken "as if they were testing for some kind of reaction." When flies began arriving to feast on the corpse, the Chimps shooed them away, and even removed the eggs that the scavenging insects had laid in it. The male who had witnessed the attack and driven away the Leopard remained with the body for almost five hours, with only one brief interruption, and the body was continuously attended for more than six hours before the Chimps finally left their fallen companion to the scavengers. The researchers noted that "the chimpanzees' reaction to dead individuals was strikingly similar and different from their reactions to wounded individuals" - different because, unlike wounded individuals, "none of the wounds of dead individuals were ever licked nor was dirt removed by any group member." Two years later, when a young Chimp died from falling out of a tree, the female members of his troop first carried his body along with them; and when they seemed



about to leave the corpse behind, several of them returned to the body and called softly to it. The researchers concluded that if the Chimps “have a notion of death, this behaviour makes sense. If not, it is puzzling.”<sup>[40]</sup>

In light of this behavior, it seems likely that dawn people recognized death *in its physical form*; when an australopith gave up the ghost, their cohorts probably did not simply abandon the body as an object of no interest, or eat it as just another animal carcass. Although there’s no evidence that any living non-human primates attempt to bury or otherwise conceal their dead, it’s certainly possible that the dawn people attempted rudimentary burials by covering corpses with branches and leaves, as elephants sometimes do. Like elephants, the dawn people may have even stopped to examine the bones of long-dead individuals of their kind. If this was so, then vultures must have been feared when they fed on dead proto-humans, or even hated. Scavengers destroy the dead to feed themselves; the body of a beloved friend, mate, or relative, still recognizable as that individual, would be nothing but scattered, anonymous remains by the time vultures finished with it. Vultures have long been thought by men and women to augur death, or even to carry death along with them in their endless travels. Just how long they have been thought of this way is impossible to say; but likely as not, the earliest link of the chain between vulture and doom was forged in the brain of an australopith.

The australopiths had a long and successful evolutionary run, persisting for at least 1.8 million years as adaptable, omnivorous straddlers of forests and plains. But around 2.5 million years ago, the climate and ecology of Africa began to change drastically. The reason laid half a world away: the Arctic Ocean had started to freeze over, for the first time in tens of millions of years. As the polar waters froze, ambient temperatures all over the globe dropped; increased precipitation (much of it in the form of snow) and low temperatures began to lock up much of the world’s water, in glaciers whose size defied imagination. The Pliocene epoch gave way to the Pleistocene, the age of ice, and the time in which humanity would arise from its humble beginnings and begin to dominate the world.

There have been a number of ice ages in the Earth’s 4½ billion year history, but this one - which brought humans out of the trees for good - was the first since before the age of the dinosaurs. The stellar and earthly mechanisms that cause glaciations are very complex,<sup>[41]</sup> and the consequences were staggering. In northerly and mountainous areas all across the globe, ice caps like those that still sheathe Greenland and Antarctica formed, driving all life before their slow, steady advances and crushing the Earth’s crust with glaciers up to two miles (3.2 km) thick. With so much water frozen into ice, the levels of the world’s oceans fell, exposing hundreds of thousands of square miles of continental shelves and land bridges. During the glaciations, areas like Japan, Britain, and Ireland were not islands; they were outlying peninsulas of Asia and Europe. Even more dramatically, North America was linked to Asia by way of an enormous land bridge, dubbed *Beringia* by geologists, which occupied what is now the Bering Strait between northeastern Siberia and Alaska.

Of course, there was a price to pay for all this new land, because life upon ice caps is sparse to nonexistent. Few plants can take root there; and there are no herbivores, ergo there are no predators or scavengers. This meant that during glaciations, almost all of Canada and parts of the northern US, most of northern Europe and much of northern Asia, and elevated areas everywhere were as dead as present-day Antarctica. The glaciations were interspersed with interglacials; warmer periods when the ice retreated, the oceans rose, and fauna and flora reinvaded the newly uncovered areas. Some of the interglacials were actually considerably warmer than the one we’re living in, with subtropical temperatures holding sway as far north as Britain and southern Canada.<sup>[42]</sup> But interglacials were comparatively short, often lasting only a third as long as the glaciations. A complete glacial-

interglacial cycle is thought to occupy about 100,000 years,<sup>[43]</sup> meaning that the Pleistocene would see about two dozen of them.

Along with the ice came new ecosystems, new plants and animals to fill them, and new opportunities for all concerned. As the global climate became cooler and drier, both temperate and tropical forests shrank, giving way to more open habitats. Among the largest of these new ecosystems was the tundra at the fringes of the ice sheets, stretching across Eurasia and North America. This was not the barren, desolate sub-Arctic tundra that we know today. Since the ice sheets had spread so far south, and pushed so much pulverized mineral-rich rock before them, their fringes had fertile soils and supported a relatively lengthy growing season with longer days, so there were more plants and many more animals to be found there, large and small.<sup>[44]</sup> Tree pollen is found in fossil deposits of the glacial tundra even during the coldest periods, but trees are one form of life that you will never, ever see on the modern tundra.<sup>[45]</sup> During interglacials, the tundra environment retreated north and was replaced by evergreen conifer forests in the north and mixed, partly deciduous forests in the south.

Situated as it was in the tropics, the African home of the dawn people was less affected by the nascent ice age than were the other continents; its glaciers stayed in the mountains, never reaching the titanic sizes of those further north and south, and its smooth coastline shifted but little. But it wasn't immune to the climatic effects; like everywhere else, it did get colder. Unable to withstand even moderately cool temperatures, the tropical forest at the heart of the continent retreated closer to the equator. The animals that inhabited the forest and its fringes either retreated with it, or reconsidered

their options. Our ancestors took the latter course; they ventured out into the plains, leaving the forests behind. It is often in times of great duress that great changes take place; so it was 2.5 million years ago, when a group of australopiths evolved into habilines - *Homo habilis* ("handy man"), the first member of our genus.



*H. habilis* (left) was named for its ability to make stone tools, as opposed to merely using stones "as is" like the australopiths. The habilines' stone choppers appear to have been made for the express purpose of skinning and dismembering large carcasses,<sup>[46]</sup> though that doesn't necessarily imply that the handy people were killing large mammals. Although the habilines certainly were more powerful and efficient hunters than the dawn people and were well able to kill gazelle-sized and smaller prey,<sup>[47]</sup> they probably possessed no weapons capable of killing the really big herbivores; buffalo, large antelopes, wild horses and so forth. The handy people obtained 20% or more of their calories from meat,<sup>[48]</sup> about the same amount as modern humans, and far more than the australopiths. This

sudden surge of carnivory was due to necessity more than choice; having abandoned the forests, the habilines were faced with an environment that was far poorer in edible vegetation than the forest fringes they were used to. The climatic changes that sent the forests reeling also resulted in long dry seasons on the plains, which can be described as periodic droughts. These periods of parched landscape continue in Africa today, and they may denude some areas of living vegetation so completely that even dedicated herbivores like Elephants and Hippos may be forced to feed on carrion, or starve.<sup>[49]</sup>

There's no actual hard evidence that the habilines were scavengers. It has been claimed that there is evidence that the habilines scavenged from the kills of predators, in the form of bones of

large mammals upon which the cut marks of the habilenes' tools overlay the gnaw marks of the predators; however, the "cut marks" have since been dismissed as the product of natural weathering.<sup>[50]</sup> Nevertheless, the current consensus among anthropologists is that the habilenes were scavengers – possibly the most specialized scavengers in the entire human family tree. It's even been suggested that the habilenes' ability to chop up and devour large carcasses may have resulted in the extinctions of East Africa's Giant Hyenas about 2.5 million years ago; perhaps the Hyenas' teeth just couldn't compete with the habilenes' stones (right).<sup>[51]</sup>

The habilenes were faced with three possibilities for scavenging: they could get what was left from predator kills after the predators were finished with them, they could pirate kills directly from predators, or they could wander scavenge by way of vulture-trailing. The first of those options was the least promising. Modern hunter-gatherers such as the Hadza people of northern Tanzania don't waste time searching out abandoned Lion or Hyena kills; it simply wouldn't be productive for them to do so.<sup>[52]</sup> Except when there is a gross abundance of easy prey, the large carnivores of the African plains don't voluntarily abandon kills that have much meat left; most of the time, they can't afford to, as their hunts tend to fail more often than they succeed and every kill is much-needed.

Wander scavenging was a more promising possibility. It's been suggested that the habilenes would best have been able to scavenge in the riparian woodlands along the shores of lakes and rivers, where could be found both the kills of mammalian carnivores and the carcasses of animals that died of disease or drowning. The reasoning is that such woodlands would have (partially) hidden carcasses from vultures, and allowed the habilenes a measure of protection from the fearsome predators of the open plains.<sup>[53]</sup> But the riparian habitat had obvious drawbacks of its own; not only would trailing vultures would have been much more difficult with tree canopies blocking the sky, but lakes and rivers have their own dangers, such as crocodiles, Hippos, and Lions looking to prey on thirsty herbivores. Isotope evidence from hominid fossils indicates that their diets were largely obtained out on the open plains,<sup>[54]</sup> where both vulture-trailing and competition with other scavengers were assuredly involved.

Humans had now been following vultures for thousands of generations; but the greater size and more efficient locomotion of the handy people ensured that they could follow more quickly and over greater distances than the dawn people had been able to, and that they were better able to deal with whatever the carrion birds led them to. There have been claims that only male hominids were involved in scavenging,<sup>[55]</sup> but this theory is not supported by studies of wander scavenging among modern humans, in which both men and women take part more often than not. Successfully watching for vultures and tracking down carcasses would have required as many eyes and ears as possible; and female hominids may well have been better at this than males—who, in our species at least, tend to focus on "the big picture" rather than upon the subtler details of a situation. It is true that male hominids, generally larger and presumably with deeper voices than the females, were better able to intimidate competing scavengers on an individual basis; but competition between scavengers also depends heavily on numbers, which explains why a clan of Spotted Hyenas can successfully compete with smaller numbers of Lions, or why a crowd of griffons can sometimes run a Cheetah off of its kill.



It would have been to the hominids' advantage to be able to gather all of the members of a band, male and female, at a carcass.

The heyday of the handy people probably marked the peak of the vulture-following technique as a staple of human experience. When the birds found a carcass or showed up at a carnivore kill, the sight of a swarm of vultures to a hungry band of handy people would've been a welcome signal that it was time to grab the rock choppers and start running. This was likely the first time in the human-vulture relationship when an element of mutualism, of benefit to both parties, began to emerge. Now humans could offer benefits to vultures beyond their own bodies; with their stone tools, the handy people could cut through the hides of the very largest carcasses (Elephants, rhinos, and Hippos), which no vulture could breach when fresh. Whether *H. habilis* would have been willing to share anything from these carcasses is more doubtful.

Perhaps early humans were greatly appreciative of the services rendered by vultures. Some of the present-day African peoples that still practice hunting and gathering hold vultures in high esteem, as the birds locate carcasses for them; and especially because they betray the presence of Lion kills, which can then readily be stolen.<sup>[56]</sup> Historically, the Amerindians of Mexico's Baja Peninsula refused to harm Mountain Lions or Turkey Vultures, because the former animals brought down prey that was difficult for humans to kill – and the latter showed where the Lions' kills could be found.<sup>[57]</sup> Another apt comparison to vulture-following can be found in the behavior of the African Honeyguides. These small birds will lead larger animals - most often Ratels (honey badgers) or humans - to bees' nests in the expectation that they will break it open to steal the honey, and then reward the Honeyguide with some of the delicious honeycomb. Unlike vultures, however, Honeyguides appear to lead humans to their prizes deliberately. It's said by those in the know that a human who stiffes the Honeyguide out of its rightful share of the prize will be led straight to a pride of Lions, or to a cobra's nest, the next time they try to follow it. Quite possibly, a similar system of beliefs developed around vultures, and birds that led humans to meat were rewarded with what the humans considered to be a fair share of the carcass. A similar tradition still exists today in northern Europe, where deer hunters may leave the ever-present Ravens a "corbel's fee," a portion of carrion. But it's equally likely that the vultures were simply ignored once driven off the carcass by the handy people, and received no reward at all for their work. If so, this may have been when certain vulture species, such as the shy White-headed, began to develop their general dislike of humans; and who could blame them?

The possibility that habilenes engaged in piracy – that is, that they stole the kills of predators by intimidation or attack - is more controversial. Habilenes were bigger and stronger than the australopiths that preceded them, and were thus better able to intimidate other scavengers – and even fight them, if it came to that. Some anthro-pals have claimed that habilenes could only have competed with mammalian carnivores with the aid of fire,<sup>[58]</sup> but that's nonsense; modern baboons and Chimps are perfectly able to pirate carcasses from Leopards without fire, or even tools. When engaging in acts of piracy, the habilenes had a number of advantages on their side; not just cutting tools, which could also have served as effective weapons, but also strength in numbers and in coordination. As long as they outnumbered their opponents, the habilenes could probably have pirated kills from most of the African carnivores – though the activity was still very dangerous, just as it is for all other mammalian scavengers. The long and doubtless frequently lethal experience of human scavengers at large carcass fracas was not in vain; by this time, large carnivores had probably begun to grant humans (and their weapons) some healthy respect.

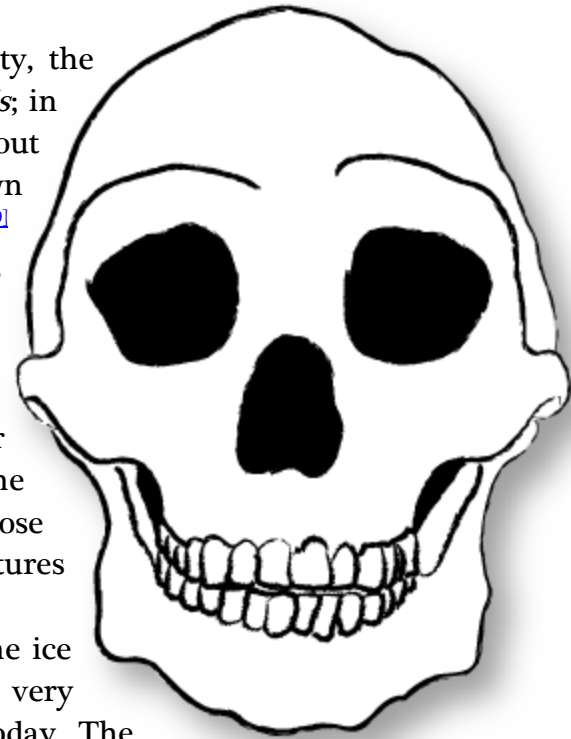
The habilenes were far from alone in their inflated proportions, as creatures from all around the world had become bigger in response to the climatic changes. In this ice age world, huge size was



not the fatal flaw that it would become in the age of modern humans. Animals of all kinds had very good reasons to become giants: big herbivores could live without food longer, travel further, and were vulnerable to fewer predators than smaller ones. Big carnivores could also go longer between meals, could tackle a wider range of prey, and were less likely to have their prey pirated by other predators. Perhaps most importantly, big animals retain heat more efficiently than smaller ones, because relative to their body mass they have a smaller surface area from which to lose bodily warmth; this is especially important for warm-blooded animals like mammals and birds, which metabolize most of the food that they consume just for the sake of keeping their body temperatures constant. All of this is encapsulated nicely in Bergmann's Rule, a zoological decree which states that, all other things being equal, animals living in cooler climates will be larger than animals of the same species in warmer climates. Bergmann's Rule was, in essence, the constitution of the ice age menagerie, a worldwide collection of giants known as *megafauna*.

Appropriately enough, the next torch-carrier for humanity, the *Homo erectus*/*H. ergaster* superspecies, was larger than *H. habilis*; in fact, it was similar to our species in size, though its brain was about 30% smaller. *H. ergaster* (right) was the first human species known to have left the bounds of Africa, well before 1 million years ago.<sup>[59]</sup> Like many other great moments in human history, this was probably an accident; it seems that an exceptionally dry period in northern Africa expanded the deserts there, thus cutting off the rest of the continent to any creature that couldn't cross miles of burning sand, and forced the northern erectines to seek greener pastures by crossing the Sinai Peninsula into Asia.<sup>[60]</sup> Eurasia, the world island, the biggest landmass on Earth, was a new place to those first immigrants; a land of limitless space and strange new creatures the likes of which human eyes had never seen.

Due largely to its insulation from the great glaciations, the ice age fauna of Africa and (to a lesser extent) the Near East was very similar to the wildlife treasures that those regions still hold today. The creatures inhabiting the remainder of Eurasia, especially the northern reaches where the glaciers tapered into the tundra, were quite another matter. Much of Europe was under the ice during glaciations, which helps to explain why humans seem not to have ventured there until about a million years ago;<sup>[61]</sup> during those ages, Europe harbored several enormous, cold-adapted herbivores, of which the elephant-like mammoths are only the best known. The Steppe Mammoths that populated Eurasia during the arrival of the erectines may have been the biggest elephants ever (they would later evolve into the smaller Woolly Mammoths), and the largest land animals ever seen by humans. There were also Musk Oxen, much like those seen in Alaska and northern Canada today; Wisent, the European forest bison; the larger, more numerous Steppe Bison; and Woolly Rhinos, similar to African Black Rhinos in size but with long, thick coats of hair to protect them from the cold. The undoubted star among the hoofed mammals was the Giant Deer, an enormous creature the size of a Moose, with antlers that spanned an incredible 12 feet (3.7 m) from tip to tip in the biggest males. Just as impressive was the Aurochs, the ancestor of today's domestic Cattle, which reached 6½ feet (2 m) in height at the shoulder and often weighed over a ton (908 kg). Smaller but incredibly numerous was the Saiga Antelope, which roamed the tundra in herds numbering tens of millions. Among the carnivores were the Cave Lion, far larger than the living African and Indian lions and bereft of any



mane, judging from contemporary cave paintings; the Cave Hyena, closely related to Africa's Spotted Hyena but much bigger; the Gray Wolf, a common sight from the highest mountains to the deepest forest; Wolverines, bigger than today's; the Scimitar Cat, last of Europe's saber-toothed felines; the Dhole, a fearsome canine that hunted in huge packs; and the Cave Bear, an odd ursine that was as large as the living giant Grizzlies of Kodiak Island, but apparently was almost entirely herbivorous.

During the relatively warm and ice-free interglacials, the animals specialized for cold conditions retreated north, and were replaced in their former ranges by fauna more similar to that of present-day Africa, including Hippopotamus, Straight-tusked Elephants, and two species of non-woolly rhino. From a scavenger's perspective, there was one important peculiarity of these megafaunal ecosystems: namely, that many of the herbivores were simply too big to be killed by predators (even sabertooths) once they reached adulthood. Such animals will ultimately provide more food for scavengers than will species that are frequently preyed upon and consumed by mammalian predators; in modern Africa, for example, vultures are expected to be more common where Elephants are still abundant, because the great pachyderms are much more likely to be felled by age, disease, and other vulture-friendly agents of mortality than by hungry Lions or Hyenas.<sup>[62]</sup>



The continent-spanning Eurasian vulture guild with its Monk Vultures, Eurasian Griffons, Lammergeiers, and Egyptian Vultures was probably in place by one million years ago, and certainly was by a half-million years ago. Like most wild creatures of the time, all four vulture species were both more common and (with the possible exception of the small Egyptian) more widespread than

they are today, and not just during the warmest periods. There's a common perception that vultures in general are tropical and subtropical birds that can eke out only a marginal existence in temperate zones; but the fossil record shows that this perception is accurate only when applied to the *modern* situation for the larger vulture species. Despite the generally colder climate of the Pleistocene, Eurasian Griffons and Lammergeiers inhabited areas as far north as central Belgium, well to the north of their modern haunts in Europe; and fossil Monk Vultures have been found near Magdeburg, Germany, at about the same latitude as The Hague. These fossils suggest that only lack of food and/or human interference are keeping the vultures out of such boreal climes today, rather than any inability to adapt to cooler temperatures and shorter summers.<sup>[63]</sup> With enormous amounts of potential food, almost limitless space for breeding/feeding territories, and little or no human-caused mortality, the winged scavengers of Pleistocene Eurasia must have far exceeded even today's African vultures in numbers; and, since the carcasses that they fed from were so large and numerous, gatherings of hundreds or even thousands of birds were probably quite common.

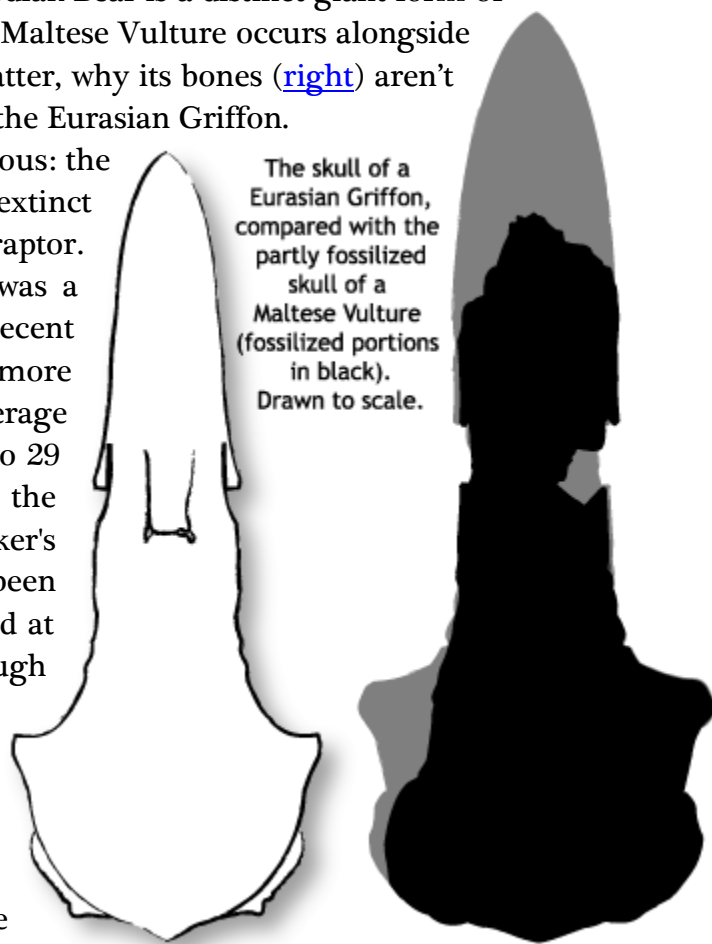
Even some of the islands of the Mediterranean Sea which are now bereft of vultures were graced with the birds during the Pleistocene. At first glance, it seems impossible that such small landmasses could have supported vultures at all; surely there were no thriving populations of large herbivores to feed them. Actually, there were - only the megafauna had become minifauna; the giants turned into dwarfs. Isolated habitats like islands have curious effects on the evolution of their inhabitants; the inherently limited land area and the difficulty of any immigration or emigration ensure that there is little food, space, or diversity of species, compared to the abundance of all three in mainland habitats. But as a result, most islands lack the large predatory mammals and reptiles that force mainland herbivores to become small and quick or huge and formidable to survive; and this lack of competition from land scavengers allowed vultures to survive on the islands' comparatively slim pickings of carrion. For most creatures, tried-and-true strategies for mainland survival simply don't work on isles; thus animals that tend to be small elsewhere become large, and animals that are ordinarily big become little, sometimes tiny.



Amongst this confusion of dimensions, it's especially ironic that the largest-ever Old World vulture was first discovered in the fossil deposits of the minuscule Mediterranean island of Malta, lying between Sicily and the coast of North Africa. Richard Lydekker, the British naturalist who found limb bones and vertebrae of the giant in 1890, commented in his initial description that it was "considerably larger than any existing species [of vulture], but apparently very closely allied . . . to the large Griffon Vulture of Southern Europe,"<sup>[64]</sup> and so he placed it in the same genus as the griffons, under the name of *Gyps melitensis*. Later workers have disputed Lydekker's placement, and much else about the fossils of this bird; different paleontologists disagree about whether it was more closely related to the griffons or dark vultures, whether it actually comprised two different species, or indeed if it was a separate species at all.<sup>[65]</sup> Some have suggested that it was instead a geographically distinct giant form of the Eurasian Griffon, much as the famed Kodiak Bear is a distinct giant form of the Grizzly Bear. That theory neglects to explain why the Maltese Vulture occurs alongside normal-sized Griffons at some fossil sites – or, for that matter, why its bones ([right](#)) aren't just larger, but also noticeably more robust, than those of the Eurasian Griffon.

Regardless of its relationships, this bird was enormous: the largest known Old World vulture, and second only to the extinct Haast's Eagle of New Zealand as the largest known raptor. Lydekker initially calculated that the Maltese Vulture was a fifth larger than the Monk Vulture,<sup>[66]</sup> though more recent studies suggest that a size difference of 10-15% may be more accurate.<sup>[67]</sup> Even the latter figure would equate to an average wingspread of about ten feet (3.1 m) and a weight of 25 to 29 pounds (11.3 to 13 kg),<sup>[68]</sup> comparable in both respects to the biggest living vulture, the Andean Condor. Since Lydekker's initial discovery, fossils of the Maltese Vulture have also been found on the islands of Crete, Corsica, and Sardinia,<sup>[69]</sup> and at several locations in southern mainland Europe,<sup>[70]</sup> though reported occurrences of the species in Central Europe have been disputed.<sup>[71]</sup> In the Mediterranean region, the Maltese Vulture was clearly a widespread and successful bird, the supreme megafaunal scavenger of its time. No other avian scavenger could have driven a Maltese Vulture off of a carcass, and in direct competition even the fearsome Monk Vulture must have given way to this still-larger bird. Curiously, it is the only fossil vulture found on Malta (and possibly the only large raptor), although on other, larger Mediterranean islands such as Sardinia several vulture species lived together,<sup>[72]</sup> and during the Late Pleistocene the Maltese Vulture shared Crete with Lammergeiers, Monk Vultures, and Eurasian Griffons, as well as two large eagles and various other raptors.<sup>[73]</sup> The most plausible explanation for this dearth is that little Malta, with a limited amount of food for vultures, could only support a single species of the scavengers; and the Maltese Vulture dominated the island to the extent that no other vultures could establish themselves.

As this thriving scavenger population indicates, Eurasia must have been a veritable paradise for early humans, providing ample food, wide open spaces, and a limitless supply of glacial meltwater – during the ice age summers, that is. Winters weren't so benign, particularly for naked apes that hadn't yet learned how to clothe themselves. During the Pleistocene winters, carnivores were faced with the





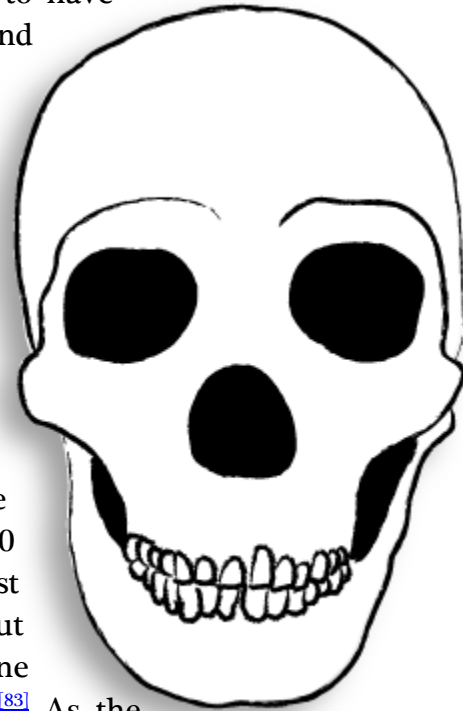
choice of staying on the northern plains and waiting out the cold, or heading south with the migrating herbivore herds and trying to make a living in the southern forests. Vultures faced a similar problem during their evolutionary odyssey; they solved it (long before humans or the ice age) by splitting into two groups, the dark vultures and the griffons. The dark vultures most often lead a sedentary and opportunistic lifestyle; they feed on large carcasses when the herds are present and switch to small carcasses and live prey, raising their young on these foods, after the herds have left. The griffons, dependent on large carcasses, follow the herds wherever they go; they're able to do so because unlike the dark vultures, and most other predators, they have no permanent feeding territories to defend.<sup>[74]</sup> It's thought that herd-following behavior is a comparatively recent innovation for humans; the erectines were not capable of killing most herd-living animals, so they would have had little reason to trail the megafaunal migrations. But neither could they live in the north during winter, since they had no clothing and, at best, very limited control of fire. Like many other ice age creatures, and many modern-day retirees, these humans must have spent their summers in the north and their winters in the south.

There's no more evidence that the erectines deliberately buried their dead than there is for the dawn people. Yet there were funeral rituals, of a fashion; the erectines apparently sometimes removed the skulls of their dearly departed, carried them to caves, and broke them open in order to eat the brains.<sup>[75]</sup> This is still common behavior among present-day headhunters, and even Chimpanzees engage in a bit of brain-eating; Jane Goodall once watched a Chimp use a leaf to wipe the last bits of brain from the skull of a young baboon. As Joseph Campbell bemusedly put it, "Apparently primates like the tastes of each other's brains."<sup>[76]</sup> This behavior is of particular interest to us, as it may have some relevance to the belief that one can gain a vulture's apparent powers of seeing the future by eating its brains. This is still believed, and vulture brains are still eaten, in parts of the world today. Modern Zulus of southern Africa will kill vultures specifically to harvest the brains for *inyangas* (healers), who require them for problem-solving by way of clairvoyance.<sup>[77]</sup> When early humans ate the brains of other humans, it was often not primarily for nutritive purposes (there were non-human brains available for that), but for the sake of ritual and superstition.<sup>[78]</sup> When modern cannibals do this, it is often due to a belief that, by eating the deceased's brain, they will learn what he had learned, and know what he knew; in short, that they will gain the powers of the brain's former owner. The belief that vulture brains could make one able to "see" the locations of carcasses, or even to predict the future in general, likely stems from early humans' desire to gain the powers of the birds whose scavenging prowess so often humbled them. The erectines thus may have killed vultures for their brains from time to time, but it's unlikely that such killing would be seriously detrimental to the vulture populations as a whole; as of yet, there just weren't enough people for that to happen.

These brain-eaters were probably the first humans with whom some vultures developed a commensal relationship that was primarily advantageous to the birds, rather than to the humans. Small vultures must have been a common site at the middens of prehistoric hunters, where the remnants of their kills were dumped. Today's Egyptian Vultures follow hunters and other nomadic humans from place to place, knowing that they will provide all sorts of edible waste.<sup>[79]</sup> Unlike large mammalian scavengers, these birds would not have been seen as threats by humans, and so their activities were probably tolerated, if not encouraged. However, humans were not yet skilled enough hunters that their kills provided much food for large vultures, like the griffons, although that would soon change.

The most (in)famous of extinct humans was a species that evolved from *H. erectus* or from the similar *H. heidelbergensis* by half a million years ago.<sup>[80]</sup> *Homo neanderthalensis* (below) was a genuine artifact of the ice ages, specially adapted for the Eurasian cold that they evolved and lived in for their entire existence. The Neanderthals were shorter than modern humans, but massively built; and their brains averaged larger than ours, although they are thought to have been capable of only very limited speech. Neanderthals both hunted and scavenged, like the erectines. But they did both in a much more difficult and unforgiving environment; whereas the erectines had probably never ventured far north of the Mediterranean (at least during glaciations), Neanderthals made the tundra and snowy steppes of Europe and Asia their home. They almost certainly made clothing from fur and hides, and so could live in cold climates that were previously off-limits to humans.<sup>[81]</sup>

As fellow scavengers whose diets consisted predominantly of meat,<sup>[82]</sup> and that fed heavily on the carcasses of megafauna, Neanderthals were undoubtedly longtime cohorts of the five European vultures. Both scavenging and hunting could be very difficult in these northern climes; but the warm interglacials, such as that of 130-115,000 years before present (BP), were actually tougher than the harshest glaciations for the Neanderthals. During this interglacial, and until about 75,000 BP, most of central and eastern Europe was occupied by a vast pine forest, in which little good hunting could be found for early humans.<sup>[83]</sup> As the climate grew colder, the forest retreated into sheltered southern valleys, leaving in its wake vast grasslands and tundra rich in megafauna. Europe east of the Rhine River and north of the Alps had been only sparsely and intermittently populated by humans prior to this - afterwards, Neanderthals spread into Europe as far north as the Arctic Circle, and also began colonizing Asia as far afield as Siberia.<sup>[84]</sup> These humans hunted, scavenged, and gathered much as their ancestors had further south. But the tundra contained few plants that were edible to humans, so these humans received most of their calories from meat;<sup>[85]</sup> they were probably more dependent on the megafauna than any other people before or since.<sup>[86]</sup> Interestingly, Neanderthal hunting bands apparently specialized in killing prey of one particular species, Reindeer and Tarpan being the most popular choices.<sup>[87]</sup> During the springtime, they also killed large numbers of the young of megafauna, like Cave Bears and mammoths, which may have been difficult or impossible for them to kill as adults. The Neanderthals could tolerate most winters reasonably well without having to trek to warmer climes; but during the very coldest periods, at the height of the glaciations, most or all of them had to move south.<sup>[88]</sup> They were not alone in this; small to mid-sized herbivores like deer, horses, and antelope also migrated



south during winter,<sup>[89]</sup> and even mammoths withdrew to the forests when the worst cold snaps hit.<sup>[90]</sup> The only large tundra mammal that didn't head south during winter was the hardy Musk Ox.<sup>[91]</sup>

Ice age winters were trying times for animals of all kinds. On the tundra, herbivores had to graze upon plants that were frequently covered with ice and snow even during warmer seasons. Each tundra herbivore had to devise a way to scrape the snow away; Musk Oxen and Reindeer used their hooves, Woolly Rhinos used their long horns, and mammoths used their tusks, judging from the patterns of wear found on them.<sup>[92]</sup> Today, most of the creatures inhabiting northern climes that don't hibernate or migrate during the winter suffer from constant malnutrition; their body weights are lower than normal for the entire season.<sup>[93]</sup> Severe winters routinely kill up to a third of the Elk and Bison in Yellowstone National Park;<sup>[94]</sup> and the late spring snows common in much of the world may be even more devastating, as the animals that must weather them have already exhausted most of their fat reserves and whatever food there was at the beginning of winter.<sup>[95]</sup> It can be safely said, then, that the impact of humans upon the wintry world of the Pleistocene was enormous. Their hunts surely killed many animals already weakened by cold and hunger; but it should be emphasized that humans don't have to directly kill animals to add to their mortality. When humans approach, their mere proximity causes creatures that have learned to fear them to flee; among Pleistocene animals, such action would waste their precious fat reserves and bring them that much closer to starvation.<sup>[96]</sup> Despite all of this mortality, winter can be lethal for scavengers as well. The cold may keep carrion fresher for longer, but it may also freeze the meat solid by the time it is found; and carrion buried beneath snow may never be found at all. Hence many scavengers starve during the winter, or die from cold stress.

Neanderthals were unique among the ice age scavengers in their ability to feed from carcasses that were frozen; not just rimed with frost, but cold through and through and as hard as rock. Even Spotted Hyenas and Wolverines have trouble with completely frozen meat; prior to the arrival of humans, a carcass that was given the ice block treatment would most likely stay where it was, uneaten, until the spring thaw. But the Neanderthals had an ace up their sleeve; like Prometheus trekking back from the realm of the gods, they brought fire with them. Long before flame was the defining factor in shaping industry, it was a vital tool in surviving ice age winters. Neanderthals could use fire to defrost a carcass; a small one could be brought back to a cave in its entirety, then defrosted and consumed. A large carcass, like that of a mammoth, would act as a sort of primitive meat locker for the humans, as they could defrost and devour it piece by piece. Even so, the Neanderthals must have been living under the threat of starvation during winter; several of the cave sites in which their artifacts were found contain a plethora of animals' skulls and limb bones, suggesting that the bipedal scavengers who brought them there were so desperate for animal fat (in the form of brains and marrow) that they would even seek out stripped skeletons.<sup>[97]</sup> With conditions so fraught with the threat of starvation, vulture-trailing must have been a strategy of the utmost importance during winter - if there were any vultures that hadn't migrated south.

Fortunately for the Neanderthals, there almost certainly were. Vultures could successfully ply their trade during the winter, provided that they took the greatest pains to minimize their energy expenditures and maximize their energy resources. Taking advantage of the present-day absence of vultures from northern latitudes, some eagles there depend heavily on carrion during the winter; North American Bald Eagles, for example, largely abandon predation when the snows begin to fall, and turn to piracy and the carrion of large mammals to survive. Shunning warm-season territoriality, many eagles roost communally during the winter, almost like griffons, and juvenile eagles follow adults to carcasses in the hopes of finding enough meat to avoid starvation.<sup>[98]</sup> Today, most of the

Egyptian Vultures in Eurasia migrate south during the autumn and return in early spring; this migration probably dates from the Pleistocene, when the small, warmth-loving Egyptians left the harsh ice age winters to the larger vultures. It's even been hypothesized that during the most heavily glaciated periods, the Egyptians would have had to vacate Europe entirely.<sup>[99]</sup> Juvenile Eurasian Griffons also migrate, although adults of that species tend to stay put. Though cold in itself seems to pose few problems to Griffons, the young vultures would have been hard-pressed to survive Pleistocene winters, since they could easily have been dominated at wintertime carcasses by Maltese Vultures, Monk Vultures, and adults of their own species. The vultures that didn't migrate would have depended on their efficient system of carrion-finding to survive. If young Maltese Vultures didn't fly south, they may have well followed other, more experienced vultures to carrion; and though they probably couldn't dominate adults of their own species, they could well have stood up to adults of smaller species (which were all other species). The Neanderthals likely depended heavily on the vultures to locate carcasses for them during the winter, even more than during the summer; the appearance of the birds in the aftermath of a storm that had driven all living prey into hiding could easily spell salvation for a starving band of humans.

The Neanderthals provide an additional point of interest in the ongoing human-vulture relationship: they were the first humans known to have deliberately buried their dead. Neanderthals in Europe, the Near East, and Central Asia appear to have dug graves in cave floors, placed corpses in them, possibly decorated the bodies with flowers (inferred from pollen in the fossil deposits<sup>[100]</sup>) and red ochre, and then buried them. Some of the skeletons are in such constricted positions that they must have been tied up before being buried, suggesting to some that the Neanderthals feared their dead would walk from their graves.<sup>[101]</sup> All the hallmarks of a planned, ritualized funeral are there, although the Neanderthal eulogies probably left something to be desired.

Burial was the first method of disposing of bodies that demanded a greater commitment of time and effort than merely leaving the corpse out for scavengers. Digging a grave large enough to hold an adult human requires no small amount of work, so there must have been substantial advantages to the survivors of the deceased for them to go to so much trouble. The most obvious advantage is that a buried corpse is placed out of sight (hence out of mind), sparing the friends and family of the deceased from having to witness the more grisly aspects of decomposition. Furthermore, intent to protect the corpse, or to protect the living *from* the corpse, goes hand-in-hand with a belief that the lifeless body is something other than the proverbial dead meat. This belief means that scavengers, the destroyers of the dead, may be disliked or feared because they don't respect the sanctity of the corpse. It's therefore a happy coincidence that burial also protects the corpse from some scavengers, especially birds with no sense of smell.

Burial does little to protect a corpse from large mammalian scavengers, most of which can easily smell decomposing flesh through several feet of earth, dig it up, and devour it. The Neanderthals were well aware of this; they didn't bother to bury their dead in areas that were heavily trafficked by hyenas and bears. Yet large carnivorous mammals present a genuine threat to living humans, and vultures do not. Why, then, did a funerary ritual develop that specifically excluded vultures from taking part, but that didn't exclude carnivorous mammals? In all likelihood, the most important reason for the Neanderthals to bury their dead was simply the desire to remove them from view, and thus to allow the bereaved to believe, or pretend, that the dead were only "sleeping." Besides, mammalian scavengers would probably only dig up corpses at night, after the Neanderthals had already left the gravesites behind.



Neanderthals were beyond doubt the most intellectually advanced humans yet to appear; their concern for their dead is only part of the surviving evidence for their rich emotional and spiritual lives. But they were not the last word in humanity. By 200,000 years ago, yet another human species had evolved from *Homo heidelbergensis* (itself the successor to *Homo erectus*) in southern Africa.<sup>[102]</sup> This species, too, began to spread throughout the rest of the continent; but its proliferation was not as benign to its fellow creatures as those of the earlier humans had been, as it was accompanied by a curious phenomenon: the concurrent extinctions of large animals. By 60,000 years ago, Africa had lost seven genera of large mammals; about 15% of possessed.<sup>[103]</sup> These extinctions have often to some natural catastrophe, but there is little causes. However, this new human species was same time; and these humans were, beyond *sapiens*, as it would later call itself, spread with different groups seeking new hunting which was colonized around 40,000 years

Much of this new human species' follows) the same patterns that had been valued because they could find food, and feared because of their familiarity with *sapiens* was capable of symbolic thinking, be feted and reimagined in ways that earlier

In 2008, a paleontological excavation Germany discovered (in pieces) a musical was fashioned from the radius of a Eurasian important find, was not unique; similar vultures have been discovered elsewhere in early Roman period.<sup>[106]</sup> The great surprise of combination of carbon-dating of the flute was found indicate that it was left there no 40,000 BP, during the earliest occupation of two other flutes found in the same deposits, the best of current archaeological any of the earlier human species, not even

What these people - some of the is an open question (and an unanswerable Though one might be tempted to ascribe of making a flute from a vulture's wing, other also been found in the same area; and these mammoth ivory or the bones of swans. Such a diversity of materials suggests that the animals in question were processed, psychologically and physically, in a utilitarian manner; that is, when they wanted to make new flutes the humans alternately used the wing bones of vultures or swans, or the ivory of mammoths, because those materials were freely available and suitable for their purposes, not necessarily because they attached any symbolic importance to those creatures. And yet, the rich symbolic importance that clearly was attached to vultures by the hunter-gatherers of Europe and the Near East in later millennia does rather strongly hint that the vultures' undoubted influence upon the

the megafauna that the continent had been attributed to severe climatic change, or convincing evidence for either of those undergoing a vast dispersion at exactly the any doubt, skilled hunters of big game. *Homo* into the Near East about 90,000 years ago, grounds in Southern Asia and in Europe, ago.<sup>[104]</sup>

relationship with vultures followed (and still established for millions of years; the birds were respected for their size and prowess in the air, death. But the crucial difference was that *H.* which meant that its fellow creatures could now humans had never dreamed of.

inside the Hohle Fels Cave in southwestern instrument, a flute with five finger holes, which Griffon (left).<sup>[105]</sup> Such an artifact, while an instruments made from the wing bones of large Europe and the Near East, some dating to the the Hohle Fels flute was its extraordinary age; a and analysis of the age of the rocks in which it later than 35,000 BP, and probably closer to the area by *H. sapiens*. This makes it, along with by far the oldest known musical instruments; to knowledge, no such things were ever made by the Neanderthals.<sup>[107]</sup>

earliest of our direct ancestors - saw in vultures one, unless more artifacts are discovered). some deep and inscrutable meaning to the act flutes of similar or somewhat later age have were made not from vulture bones, but from

human imagination was present even among the flute-makers of Hohle Fels, if only in an embryonic form.

The members of *H. sapiens* were the first humans that could, and did, kill the real giants that walked the earth: Mammoths, rhinos, Hippopotami, and Aurochs; yet there is nothing in their bones to suggest that they were more physically capable than their ancestors. While humans were by now expert pirates of other predators and skilled vulture-trailers, they still weren't anatomically adapted for killing large prey. The demands for successful predation are quite different from those for piracy; after all, prey animals cannot be intimidated to death, although intimidation can be part of a killing strategy. Prior to *H. sapiens*, humans probably didn't possess the technology to kill the biggest creatures of their world. The weapons that had been steadily developing since the time of the handy people certainly gave humans an edge when hunting small and medium-sized prey; but to hunt healthy adult mammoths or Woolly Rhinos armed only with thrusting spears (rather than throwing spears) or stone knives was not an option, except as a handy method of assisted suicide. It remains controversial whether any humans before *H. sapiens* were able to construct and use projectile killing weapons; the evidence that they did is limited, and it seems that even the Neanderthals preferred to use cutting and thrusting instruments instead.<sup>[108]</sup> Modern humans able to conceive of and make throwing spears, bolas, and (eventually) bows and arrows were easily able to circumvent any prior restrictions on prey size. No longer did prey have to be grappled with in order to kill it; it could now be killed safely, at a distance, before it even realized that it was under attack. Giants like mammoths and rhinos only made bigger targets; their own formidable defenses were of no use against modern humans. It was this transition from arm's-length weaponry to spear's-throw weaponry that allowed for a general shift in meat-gathering strategy, from scavenging to predation.

These brainy new arrivals practiced hunting techniques that were both very productive and staggeringly wasteful. One of the more infamous of these was "stampede hunting," in which an entire herd of herbivores was driven along a pre-determined path by a band of hunters (sometimes with the aid of fire), and then off of a cliff high enough to kill anything that fell from it. During the Pleistocene, this technique was used to slaughter Tarpan in Europe, wild asses in Asia, and later Bison in North America,<sup>[109]</sup> but, contrary to the modern stereotype of the noble savage who wastes nothing of his prey, these hunters made use of only a small number of the animals that they had killed, leaving the vast majority of the carcasses intact for scavengers. Annihilating an entire herd of large mammals for the sake of a mere fraction of its animals' meat, bones, and hides seems irresponsibly wasteful to us, but such large-scale slaughter was only a reflection of the biologically plentiful times that these people lived in; they likely found it impossible to imagine that there would ever come a time when the herds would be gone. Although we know that these hunters admired and idolized mammalian, avian, and reptilian predators, such admiration was displaced, in a sense; after all, *they* were the ones at the top of the heap, for there was virtually nothing on earth that they couldn't kill. The world had never seen anything like them before; and short of fleeing at their very appearance, there was nothing that their prey could do to combat their intelligence.

In Europe, and probably in northern Asia as well, the extinctions of large animals that accompanied the spread of *H. sapiens* comprised two distinct phases: first the warmth-loving megafauna of the interglacials died out, from about 50,000 to 20,000 BP; from then on, the cold-loving megafauna of the glacial ages dwindled until its final disappearance, about 10,000 years ago.<sup>[110]</sup> Among the initial casualties of the first phase were the closest relatives of the modern people, the Neanderthals. After 40,000 BP they were driven into marginal areas like mountains and Britain by competition from the newly arrived Cro-Magnon branch of *H. sapiens*. With too little food and too

much infant and child mortality from the harsh conditions, the last Neanderthals gave up the ghost just as many of Europe's giant mammals were starting to feel the sapient pinch<sup>[111]</sup> – though apparently not without engaging in a little interbreeding with the Cro-Magnons first.

In terms of the tempo and number of species lost, the Eurasian extinctions of the Late Pleistocene far exceeded any extinctions that had happened there in the past few million years; but in strictly human terms, the dying was still very gradual, lasting over tens of thousands of years.<sup>[112]</sup> By the time the mainland extinctions ceased, some 10,000 years ago, Europe had lost all of its mammoths, Woolly Rhinos, Cave Bears, Steppe Bison, Cave Hyenas, Scimitar Cats, Dholes, and Leopards (though the latter two species still survived further east in Asia). Many other creatures, like the Giant Deer, Musk Ox, and Cave Lion, were forced into remnants of their former ranges, and would eventually succumb to human pressures millennia down the line. And most of the surviving large mammals, including Brown Bears, Moose, Wisent, and Red Deer, were dwarfed, due either to the warmer climate (in a reversal of Bergmann's Rule) or to the telltale propensity of human hunters to kill the largest of everything.<sup>[113]</sup>

As the Pleistocene creaked to a close, the climate of Eurasia became much warmer, a change that may have caused major problems for all of the continent's cold-adapted megafauna. Yet there had been similar and sometimes even stronger climatic oscillations before, without any accompanying mass extinctions; couple this fact with the arrival of *H. sapiens*, and it becomes obvious that humans played some part in the loss of the continent's giants. After extensively examining the evidence for both climatic and human effects on the megafauna, the paleontologist Anthony John Stuart concluded that in Eurasia, "Extinctions occurred only at times . . . when populations were already stressed and reduced in numbers and geographical range by climatic changes. . . . The staggered pattern probably results from the interplay of climatic change and overkill by human hunters."<sup>[114]</sup> The story told by the currently known fossil record is a tale of extensive climatic changes: first cooling, during the final glacial advance from about 50,000 to 20,000 BP, then warming as the Pleistocene ended. Both climatic changes helped forced the large animals that were ill-adapted for them into relatively small refuges, where their drastically reduced populations were then wiped out by human hunters.<sup>[115]</sup> Unlike in all earlier such transitional phases, the lost megafauna were not replaced by cold- or warm-weather counterparts, because the replacements themselves had either been hunted into extinction or were suppressed in numbers and range by the continued presence of humans. This deduction is by no means conclusive, but it does appear to be the most plausible explanation for the Pleistocene extinctions in Eurasia.

Whether battered down by humans, climate, or both, the Eurasian megafauna didn't go quietly into oblivion; some of the giant mammals, such as the Cave Bear, were apparently fragmenting into different subspecies just as they were dying out, which strongly suggests that their evolutionary tempo was quickening in response to the stress. There is similar evidence for some of the vultures, especially for the Eurasian Griffon, which had developed a now-extinct subspecies in northern Europe during the Late Pleistocene;<sup>[116]</sup> and for the Maltese Vulture, which may have split into two subspecies by the middle Pleistocene, when the interglacial megafauna was vanishing.<sup>[117]</sup> Unfortunately, the evolutionary effort was for naught; as its supply of king-sized carrion vanished, the great Maltese Vulture died out in mainland Europe, possibly before the Pleistocene ended - though it may have survived substantially longer in some islands of the Mediterranean<sup>[118]</sup> (about which more later). Like their longtime cohorts in ice age scavenging, the Neanderthals, the Maltese Vultures were likely driven into more marginal areas as their prey became rarer; as the vultures became increasingly

isolated from each other, and thus from breeding opportunities, there came a time when their species was no longer capable of sustaining itself. Thus ended the reign of Europe's grandest bird of prey.

Sometime during the Late Pleistocene, whilst many of the Old World's titans were in their death throes, humans wandered from Siberia into Alaska. At the time, Alaska was essentially part of Asia, an outlying portion of the enormous Bering land bridge; aside from the lack of previous settlers, there was nothing to indicate to these humans that they had entered a different continent. But, for the first time since modern humans had appeared, the massive ice sheets that covered much of North America had parted, creating a narrow but passable ice-free corridor that allowed the hunters - and numerous other animals - to trek south, finally emerging from the shadows of the glaciers into the ice-free zone of the New World.

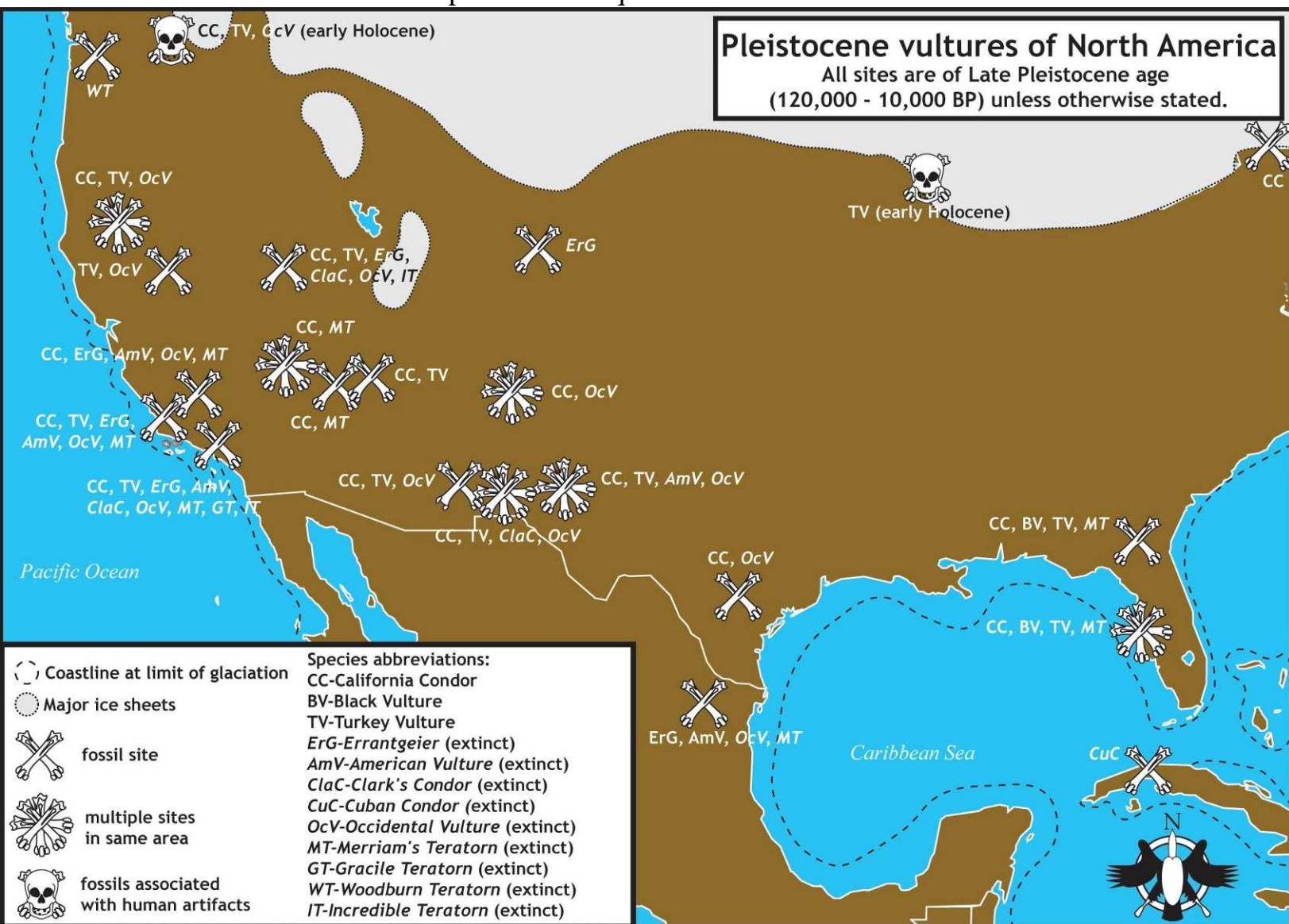
The exact timing of this migration, among the most momentous events in human history (and no picnic for non-humans, either) is fiercely debated. As of this writing, the earliest evidence for large numbers of humans inhabiting the New World, associated with the culture known to archaeologists as the "Clovis," dates to roughly 13,000 years ago. The Clovis have long been thought to represent the earliest human inhabitants of any kind in the New World; however, archaeological and genetic evidence uncovered and widely accepted in the past two decades indicates that a small number of humans inhabited parts of both North and South America, predominantly along the Pacific coast, as early as 15,500 years ago.<sup>[119]</sup> There are numerous archaeological sites with what appear to be human artifacts that have been claimed to date earlier than this, some to almost a quarter-million years ago; but all of these sites have their skeptics, and several have since been conclusively proven to be *younger* than the Clovis and coastal sites, and/or not to contain any human artifacts at all.<sup>[120]</sup> Nevertheless, the debate over the age of the earliest New World humans continues, and barring the intervention of time travel it will never be resolved. The pre-Clovis people clearly left very few artifacts behind, so there isn't much to say about them; the American portion of our story will begin with the Clovis, who entered a vast landscape populated by innumerable wonders and monsters.

One could call North America the locus of the ice ages, for its Pleistocene ice caps were the biggest on earth, larger even than Antarctica's. Excepting occasional gaps like the one used by the Clovis, both American continents were cut off from the Old World by the ice which covered the northern third of North America. Only the land south of the ice was habitable for most animals; but what animals there were. Some of them were identical, or very similar, to their Old World counterparts. The Columbian Mammoth was closely related to the Eurasian mammoths, although it was larger than the Old World Woolly Mammoth with which modern humans were already familiar. American horses were similar in general form to Eurasian horses; but there were far more species of them, some weighing over half a ton (454 kg). American Pronghorns were comparable in size and shape to the Eurasian Saiga Antelope (though they are not closely related to the antelopes), but they were so fast that even the fleet Saiga looked sluggish by comparison. The Eurasian Scimitar Cat had found a home in North America; so had the ubiquitous Lion, here much larger than any living Lion, and two species of cheetah, lightning-quick predators that provided the impetus for the speed of the Pronghorns. American Bison were bigger than those of the Old World, with enormous horns. The canines were represented by familiar Gray Wolves and Dholes, less-familiar Coyotes; and Dire Wolves, heavily built, big-brained creatures that were the American equivalent of hyenas, with similar bone-crushing teeth, and which probably watched America's condors as avidly as Africa's hyenas watch griffons.

And then there were New World creatures that were like nothing humans had ever experienced, or would ever experience again. There were sloths: not only the tree-living slopokes



that still persist today, but giant ground sloths that grew as large as elephants, and had claws the size of scythe blades. There was the famed Saber-toothed Cat, a low-slung killer that preyed upon the young of mammoths and mastodons. There were glyptodonts, mammalian analogues of tortoises that reached the size of a small car; and armadillos, some weighing 600 pounds (273 kg). There was the American Mastodon, an elephant-like creature that was a common sight from Alaska to Mexico and from the Atlantic to the Pacific. There were tapirs, peccaries, and llamas - and a Giant Beaver, as large as a black bear. Bears themselves were represented by an American equivalent to the European cave bear, and two species of short-faced bear, the larger of which dwarfed any living bear and was the biggest land carnivore on Earth. Many of these animals were also found in South America, the original home of the bizarre glyptodonts, armadillos, and sloths. Those creatures had evolved in South America for most of their history, only crossing to North America when the Panama land bridge between the continents arose about 3 million years ago. Llamas, close relations of the camels, roamed the Andes and pampas in great numbers, and no doubt reacted to predatory threats much as their domestic descendants do today: by spitting. The southern continent outdid North America in numbers of mastodon-like animals; it had three different genera of gompothers, relatives of the North American mastodon that had adapted to the unique conditions of the austral continent.



Accompanying and feeding on all of these beasts was the richest and most variegated vulture community that the world had ever known. Today, one of the most-sought after pictures for wildlife photographers is that of a gathering of six different species of vulture at one carcass; such an assemblage is only even remotely possible in a few locations in Africa and the northern portion of the Indian subcontinent.<sup>[121]</sup> Judging from the fossil record, six vulture species at once would have been a common sight in pre-human North America, and possibly as many as *nine* could have been seen in the most scavenger-friendly areas. Only three of those (the California Condor, Turkey Vulture, and Black Vulture) would be familiar to modern eyes; all of the others would be revelations.

Foremost in interest to most are the teratorns, the leviathans of the American skies. The Magnificent Teratorn of Argentina (*Argentavis magnificens*), the largest of them (and the largest flying bird ever), was probably long extinct by the time humans arrived. But at least one species, Merriam's Teratorn (*Teratornis merriami*), certainly was still around; its bones are found right up to the geological boundary marking the end of the Pleistocene. First described from some Rancho La Brea remains by Loye Miller in 1909, and named in honor of the paleontologist John C. Merriam, fossils of this 33-pound (15 kg) bird with a 12-foot (3.7 m) wingspan have since been found in great numbers at La



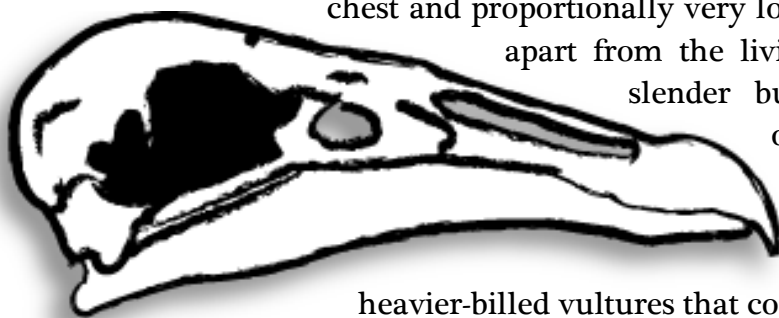
Brea, at two other tar-pit sites in California, in Arizona, in northern Mexico, and in Florida, suggesting that it inhabited southern North America from coast to coast. The 70-pound (32 kg), 17-foot (5.2 m) wingspan Incredible Teratorn (*Aiolornis incredibilis*),<sup>[122]</sup> the Merriam's Teratorn-sized Woodburn Teratorn (*T. woodburnensis*), and the condor-sized Gracile Teratorn (*Cathartornis gracilis*) all have much poorer and more localized fossil records, making it difficult to deduce much about their geographic or temporal distribution. The Woodburn Teratorn, at least, survived until after 12,000 BP, and thus was probably seen by the earliest human migrants.<sup>[123]</sup> Considering that a Late Pleistocene Incredible Teratorn would've been about twice the weight of any other flying bird, the law of averages alone suggests that it no longer existed at that time; still, if people did ever see one, then it was quite possibly the most massive flying animal ever viewed by human eyes. Of all the teratorn species, only Merriam's has yet revealed any complete skeletons.

Though they have some surprising anatomical similarities to the pelicans, the teratorns are generally believed to be closely related to the New World vultures - curiously, probably more closely to the small vultures than to the condors<sup>[124]</sup> - and to their progenitors, the storks.<sup>[125]</sup> But it doesn't necessarily follow that they behaved like modern vultures; their massive torsos, very long wings, relatively short legs, broad gapes, and deep, narrow, yet fragile bills suggest that there were elementary differences in behavior between the teratorns and any living vultures. Much like the saber-toothed cats of the Pleistocene, the teratorns have no obvious living counterparts; and much like those dentally overendowed felines, the lack of flesh-and-blood analogues for the teratorns has invited speculation on their lifestyles to run rampant, with different scientists hypothesizing that the birds behaved like anything from Ripper-style vultures to specialized predators of slow-moving animals to gull-like fish-eaters.<sup>[126]</sup> The latter two theories have been effectively ruled out by a recent chemical analysis of Merriam's Teratorn fossils, which demonstrated that these gargantuan birds consumed a fairly catholic diet, including various types of large land mammals and (for at least one individual) some sea mammal carrion as well.<sup>[127]</sup> This suggests that the teratorns practiced some kind of generalized scavenging, but it isn't consistent with either dedicated fish-eating or specialized

predation. And with regards to the theory that the teratorns behaved like Rippers, their huge but mostly hollow and fragile bills were clearly ill-adapted for tearing into the hide of large carcasses;<sup>[128]</sup> such a bill would snap like a rusty penknife blade if it was used Ripper-style. The bill of Merriam's Teratorn almost looks as though it was too structurally weak to serve any practical purpose; but, as a living bird's bill was far larger than the bill of any modern vulture, in both proportionate and absolute terms, it certainly must have looked impressive. This prompts the thought that perhaps it was used not just for feeding, but also for purposes of display and intimidation.

Structural weaknesses aside, a teratorn in the flesh was undoubtedly huge and intimidating, and in ice age North America there was no shortage of smaller vultures and eagles for it to pirate from. The teratorns' huge bills may have been nothing more or less than a deterrence mechanism, intended to intimidate the victims of their piracy. To other scavengers, a teratorn would have looked like a huge and formidable vulture with a massive bill; a competitor that should be given a wide berth. This dominance over other birds would have given teratorns several feeding options. They could bully their way through a throng in order to nibble soft tissue, such as blubber, from a carcass that had already been opened. They could hang around at the edge of the vulture throng and intimidate other birds into dropping chunks that had already been ripped free; a stratagem that is used by several living heavy-billed vultures, as well as some of the teratorns' closest living relatives, the Marabou and Adjutant Storks. And they could have pirated small carcasses from eagles and other raptors, which they could then easily swallow whole. The closest living analogue to this way of life is found in the male African Lion, which according to a number of behavioral studies lives an enviable life as an almost full-time pirate. As the largest carnivorous animal on the African plains, a male Lion can usually drive any other carnivores from a carcass - including vultures, Hyenas, Wild Dogs; and, most commonly, lionesses of his own pride.<sup>[129]</sup> Male Lions do sometimes kill for themselves, or assist lionesses in killing very large prey, but it seems that most of the time they need not bother. Needless to say, this strategy can only be successful where there are many other scavengers and predators to steal *from*; but as the African Lion inhabits the world's only remaining megafaunal ecosystem, it doesn't fare badly on that score.

Probably one of the teratorns' most frequent piratical targets was the Clark's Condor (*Brachyotus clarki*). Slightly larger than the living California Condor, it was a peculiar-looking bird, with a deep chest and proportionally very long wings.<sup>[130]</sup> But its skull (left) is what really sets it



apart from the living condors; long and narrow, it culminates in a slender but extremely elongated bill that looks like an outsized version of the small Black Vulture's bill.<sup>[131]</sup>

No other large vulture ever had such a svelte bill; the Clark's Condor was presumably able to bear one only because its guild contained numerous heavier-billed vultures that could rip through tough skin, allowing the Condors to gobble softer tissues from deep inside carcasses. Highly adapted for eating the meat of large mammals, this bird was the American equivalent of the Old World's griffons; like the griffons, Clark's Condors probably gathered in huge numbers at large carcasses.

Less spectacular in size, but much more unexpected, were North America's Old World vultures. The shock of finding what appeared to be genuine Old World vultures in the New World was so profound to the paleontologists who discovered them that the announcement of their discovery was withheld for two years, as the fossils were secretly studied and re-studied in order to be absolutely certain that they really were Old World vultures.<sup>[132]</sup> The smaller of the two species, the American



Vulture (*Neophrontops americanus*), was very similar in size and anatomy to the Egyptian Vulture - so similar that an American Vulture's skeleton can easily be mistaken for that of an Egyptian Vulture<sup>[134]</sup> - and was probably a generalized scavenger and predator of small animals like its living doppelganger. The larger of the two was similar in size to the living Pondicherry and White-headed Vultures; but anatomically, it was midway between a vulture and an eagle, like the Lammergeier.<sup>[135]</sup> In his initial description of the bird, Loe Miller wrote that, "The general impression made [by the fossils] .

.. is of a stockily built bird with a general resemblance"

to the Lammergeier, although it was only about three-quarters the size of a Lammergeier.<sup>[136]</sup> It's

impossible to deduce from fossils alone if the Errantgeier (*Neogyps errans*) behaved like a Lammergeier, and was a specialist bone-eater like that Old World bird; but there certainly

was an open niche for such a bird in Pleistocene North

America, and there is one conspicuous hint that this species occupied that niche. The only one of the

Lammergeier's many adaptations for bone-eating that

can be easily deduced from its skeleton is its broad, wedge-shaped skull, with a characteristically huge gape for swallowing whole bones.

Intriguingly, the New World bird shared this feature; it

actually had a slightly *broader* skull than the Lammergeier, despite being a considerably smaller

bird.<sup>[137]</sup> This feature would have had obvious adaptive

potential in an environment that was no doubt

perpetually strewn with the huge bones of megafauna. The most curious aspect of these two species is that they form a near-

perfect New World analogue to the Old World Lammergeier and Egyptian

Vulture: a pair of anomalous raptor species, one small and the other fairly large, with clear adaptations for

scavenging showing that they weren't typical birds of prey; yet with equally clear differences from the

typical Old World vultures. The status of the

American Vulture and Errantgeier is made still more

perplexing by the North American vulture fossils unearthed since their

discovery, which show that these two birds were just the terminus of a lineage of raptor species, anatomically equidistant from both vultures and eagles, that stretched back in time more

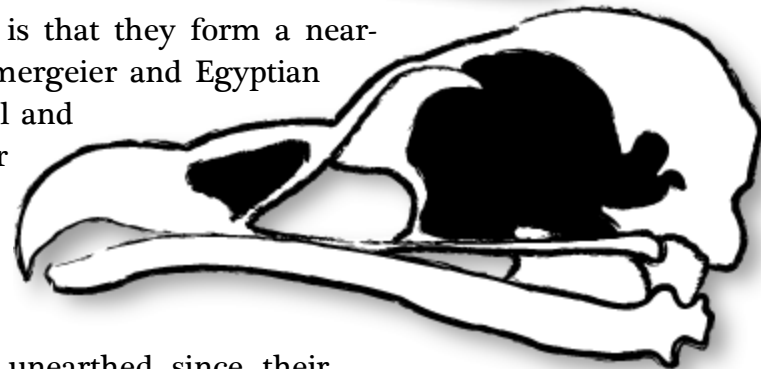
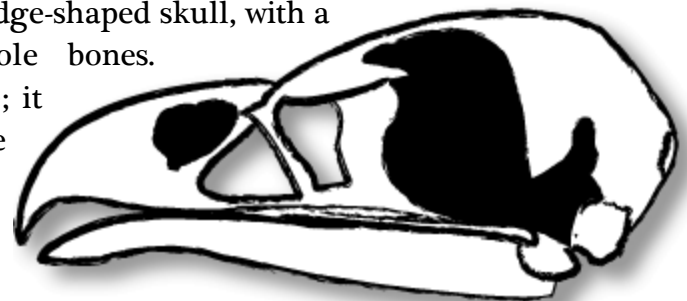
than 20 million years; and by the lack of fossil evidence that either the Lammergeier or the Egyptian Vulture inhabited the Old World prior to the early Pleistocene, a mere million or so years ago.<sup>[138]</sup> This

odd situation led both the paleontologist Hildegard Howard in 1932<sup>[139]</sup> and the ornithologist Alan Feduccia in 1974 to suggest that the Egyptian Vulture was actually a fairly recent offshoot of

American Vultures that had emigrated from the Americas to the Old World,<sup>[140]</sup> and though the idea has otherwise received scant attention, it must be said that the evidence appears to point in that

direction. As Howard noted, the American Vulture was so close to the Egyptian Vulture "which is itself a very distinct type, that it seems unlikely that these two could have developed separately over any

great period of time."<sup>[141]</sup> Both scientists restricted this theory of origin to the American and Egyptian



The skulls of an American Vulture (top) and an Errantgeier (second from bottom), compared with the skulls of a present-day Egyptian Vulture (second from top) and Lammergeier (bottom). Drawn to scale.



Vultures, but there's no obvious reason why it couldn't also hold true for the Errantgeier and Lammergeier. It may also be pertinent to note that both Lammergeiers and Egyptian Vultures have been seen quite far north in Siberia,<sup>[142]</sup> and until the mid-19th century a breeding population of Lammergeiers could be found in the mountains east of Lake Baikal;<sup>[143]</sup> all marking closer approaches to the now-submerged Bering land bridge than have been documented for any other vultures, whether Old World or New. Perhaps these venturesome birds were tempted by vestigial memories of their ancestors' original path into the Old World.

Rounding out the extinct North American vultures were the Occidental Vulture (*Coragyps occidentalis*), which was similar and possibly directly ancestral to the living Black Vulture,<sup>[144]</sup> but considerably larger and more bulky and with an apparent preference for nesting gregariously in caves, where most of its fossils are found;<sup>[145]</sup> and the archaic California Condor (*Gymnogyps californianus amplus*), slightly larger than its modern descendent, with a different bill and skull structure.<sup>[146]</sup> Thus the characteristic vulture guild of North America in the Late Pleistocene, when humans arrived, definitely included the Merriam's Teratorn, Woodburn Teratorn, Clark's Condor, American Vulture, Errantgeier, Occidental Vulture, California Condor, and Turkey Vulture, and possibly also included the Incredible and Gracile Teratorns. This guild appears to have been centered in what is now the Southwestern US, but at least some of its species were also distributed into Northern California and Oregon and as far east as central Colorado, as well as southeast into Florida and northern Mexico. The Midwestern and Northeastern portions of the US, still largely forested, were probably occupied only by the Turkey Vulture, which was also thinly but evenly spread throughout the rest of North America.<sup>[147]</sup> At least one other vulture also ventured into the Northeast from time to time; one California Condor fossil has been found in an 11,000-year-old bog deposit in New York State. At the time, that site was no more than 250 miles (400 km) south of the edge of the continent-wide ice sheet.<sup>[148]</sup> It seems that, like the Old World vultures, some Pleistocene New World vultures were able to live further north than they do today, despite the frigid climate.

The islands of the Caribbean Sea possessed their own remarkable fauna, distinct from that of the mainland. Among them was the Cuban Condor (*Gymnogyps varonai*), a close relative of the California Condor that grew bigger than its mainland counterpart, approaching the Andean Condor in size.<sup>[149]</sup> Like the forest-living vultures of the mainland, its diet probably consisted largely of sloths; but these were ground sloths, the biggest of which was the size of a black bear.<sup>[150]</sup> Mainland South America was graced with no fewer than three different condors. The Andean Condor was much the same bird as it is today, though probably more widespread and more commonly found outside of the Andes Mountains. The Relictual Condor (*Geranogyps reliquus*) was small by condor standards, being less in size than the living California Condor. Howard's Condor (*Gymnogyps howardae*), on the other hand, was a sister species of the California Condor and almost exactly the same size as its northern sibling. These latter two species were first discovered in Peru's Talara Tar Seeps, an animal trap and fossil lode operating on the same principle as the tar pits of La Brea. Though the surrounding landscape is largely desert today, it was probably a woodland-dotted savanna when its fossils were deposited; and at just under 14,000 BP, its fossils are similar in age to those of La Brea.<sup>[151]</sup> The Relictual Condor has since also been found in the Pampean region of Argentina, suggesting that this species, at least, inhabited much of South America.<sup>[152]</sup> Another discovery of Talara, Fisher's Vulture (*Sarcoramphus fisheri*), was closely related to the living King Vulture, but fell midway between that species and the condors in size; it filled a gap in the size range of the New World vultures that is left noticeably empty today.<sup>[153]</sup> Finally, the Black Vultures found at Talara are very distinctive, and may

actually represent a heretofore unknown subspecies or even an entirely different species from the living bird.<sup>[154]</sup>

When surveying this antediluvian vulturine assemblage, a couple of oddities immediately become noticeable. One is that most of these birds were *big*. None were smaller than the smallest living vultures, and the biggest were larger than any vulture alive today. But then, our perception is skewed by the times that we live in; while these creatures may have lived in an age of giants, we are living in an age of pigmies. Since land animals of all kinds averaged much larger in the Pleistocene, there's no reason why their feathered undertakers shouldn't also have been heftier. Another oddity is that there was a great number of different species, and a tremendous variety of body plans, for such an apparently simple task as scavenging. This particularly applies to North America; there is nothing alive in that continent today that is remotely comparable to the Cyrano-billed Clark's Condor or the chimerical Errantgeier, let alone the teratorns. There is also nothing like the mastodon, the dozen-foot high Yesterday's Camel, or the giant ground sloth; variety beget variety.

Though we can take it for granted that most, if not all of these vultures depended on now-extinct large mammals for food, there is little direct evidence to be found for their diets, other than the fact that vulture fossils are usually found in association with the fossils of megafauna.<sup>[155]</sup> A notable and valuable exception was discovered in the Grand Canyon of Arizona, which harbored a breeding population of California Condors during the Pleistocene. Condor fossils are found in eight different caves in the Canyon, most of which are inaccessible to any animals except birds and packrats. The caves are much the same as the preferred nesting sites used by Condors today, and the remains found therein are often very well preserved. One of the Grand Canyon caves, located more than 900 yards (823 m) above the floor of the canyon, contained partial skeletons of at least five different Condors, along with numerous eggshell and feather fragments. The Condor bones are porous and not fully calcified, suggesting that these birds were still growing and perhaps preparing to make their first flights just before they died. Judging from the fragments of mammal bones also found in the cave, the young and old Condors routinely feasted on the carcasses of Bison - and also upon horses, mammoths, camels, and a species of now-extinct mountain goat, all of which have been gone for at least 10,000 years.<sup>[156]</sup> It's long been suspected that at least some of the extinct North American vultures also fed heavily on the carcasses of marine mammals; and a recent comparative study of the levels of carbon, nitrogen, and hydrogen isotopes in vulture fossils has confirmed this. Compared to animals that eat only food of terrestrial origin, the bone collagen of animals that feed heavily on seafood contains higher levels of hydrogen, relative to carbon and nitrogen. As those isotope levels can still be detected in fossils tens of thousands of years old, it's possible to reconstruct the diets of extinct Pleistocene creatures with some accuracy. Judging from the results of this study, while Occidental Vultures and most Merriam's Teratorns consumed only the megafauna of the land, a sizable number of California Condors fed heavily on seafood; some Condors derived more than half of their nourishment from marine mammals and fish.<sup>[157]</sup>

The wondrous menagerie of American vultures must have dazzled the first humans to see it, if they could manage to take their eyes off the teeming herds for a moment or two. The larger species, in particular, would have stirred feelings that no other bird ever had. Impressive as the vultures of the Old World were, all of them, including the Maltese Vulture, had been familiar to humanity for millennia, as harbingers of carrion and competitors for meat. Imagine what the first humans to see a teratorn must have thought at the sight; perhaps their ancient dream of flight was rekindled by watching a bird with wings as wide as the arm-spans of two men as it sliced through the air. But the relations between the American vultures and the Clovis people were mostly conducted on a more

mundane level. To the vultures, the Clovis undoubtedly were prolific providers of carrion (if only briefly); and to the Clovis, the vultures could have been alternately an aid or an annoyance.



The Clovis were skillful big game hunters. They probably killed smaller animals as well as megafauna,<sup>[158]</sup> but all indications are that they took very large mammals in preference to other prey; certainly the frequently unearthed spearheads (left) for which these early Americans are named seem to have been specially designed for killing megafauna. They left few artifacts other than their weaponry; we can only cogitate about their relationships with the creatures of the Americas, although there certainly is archaeological evidence that they did kill megafauna as formidable as the enormous Columbian Mammoths.<sup>[159]</sup> When facing creatures upwards of a hundred times the weight of a human, the least dangerous option for the Clovis would have been to wound or poison the mammoths and wait for them to die, or to follow the huge animals after wounding them and kill them once they were too weak to flee or fight back.<sup>[160]</sup> This could be a risky strategy; for although it meant that the hunters faced little danger, there was always the chance that their targeted mammoth would wander off and die out of sight, leaving them unable to find the meat that they had spent so much time and trouble to harvest. Judging from the archaeological record, this happened quiet often.<sup>[161]</sup> It was in this situation that the vultures of the Americas could offer some inadvertent assistance to the hunters; the carrion birds would assuredly locate any dead mammoth and begin circling above it for all to see, and they might even trail a wounded mammoth in the expectation of its imminent death. In spite of these services, the Clovis probably looked at vultures as competitors, winged thieves who would readily steal their hard-earned meat if they weren't vigilant. Things truly had come full circle since the first dawn people began following vultures to carcasses; the carrion thieves who trailed vultures had given rise to hunters trailed by vultures – which were viewed as carrion thieves.

Shortly after the Clovis people migrated into the New World, the Americas suffered a series of extinctions, not unlike those that had already denuded Europe and Asia of many of their biggest creatures. In Old World and New alike, the losses would continue until the continental extinctions petered out around 10,000 BP. These events are often collectively called a *mass extinction*, though paleontologists frown upon use of that term for anything other than the five most severe extinction events in Earth's history. By definition, mass extinctions must have great breadth; they had to affect organisms of all kinds, regardless of where they lived or what kind of ecological niches they exploited. The end-of-Pleistocene extinctions were not so severe, and didn't follow this pattern; with few exceptions, the animals that went extinct were either large, land-dwelling, herbivorous mammals - *primary consumers* in ecological parlance - or animals that depended on the primary consumers for food. It seems that the event that marked the end of the ice ages, whatever else it was, was not a mass extinction. In a sense, this is fortunate, for the world would now be a far more desolate and lonely place if it had been; certainly *we* wouldn't still exist.

But in another sense, it's puzzling; for although there is no consensus upon what ultimately caused the five genuine mass extinctions, there is agreement that they were so severe because they started from the ground up; they first affected the living things at the bottom of the food chain, and then had proportionately greater effects as they moved on to the larger, rarer, and more vulnerable creatures. Although the event that ended the Pleistocene didn't have the breadth of the true mass

extinctions, it certainly had depth; Africa, the first continent to be afflicted, lost seven of its 49 known genera of large mammals. That equates to an extinction rate of about 15%, yet Africa was *by far* the least affected continent. Europe lost almost 40% of its megafauna; North America, almost three-quarters; South America, a full four-fifths. Australia, the most gravely affected continent, lost 81% of its megafauna, including every single land animal larger than a human. Worldwide, all of this happened in the space of about 50,000 years; it's thought that the vast majority of the extinctions in each continent occurred in a mere few thousand years.<sup>[162]</sup> Why would only large herbivores and their dependents be so vulnerable during such a small window in geological time? The prevailing view until a few decades ago, and still a popular theory today, is that the great climatic changes wreaked upon the planet by the conclusion of the last glaciation drastically changed or even obliterated the ecosystems that the extinct creatures lived in; and so they died out, due primarily to starvation. The second theory, initially formulated by the paleontologist Paul Martin in 1967 and known as the "Overkill Hypothesis," is that a certain group of recently evolved hunter-gatherers (namely, our ancestors) rendered these animals extinct during their spread around the world.

The core assumptions as well as the pros and cons of both theories have been summarized numerous times, as has the lengthy and acrimonious debate between their respective proponents, and those subjects require little coverage here.<sup>[163]</sup> Suffice to say for our purposes that both theories have plenty of holes and disappointingly little concrete evidence to support them; but a theory that propounds an exclusively climatic cause for the extinctions makes no sense. Its most obvious, fundamental, and unaddressed flaw is that more than 20 drastic climatic shifts - the glacial-interglacial transitions - had already taken place in the Pleistocene. Some of these had involved similar or even greater changes in temperature and glaciation than this most recent climate shift, yet none of the earlier shifts had been accompanied by any event remotely like the end-of-Pleistocene extinctions.<sup>[164]</sup> Indeed, according to the geological record the only significant differences between this climate shift and the many that had preceded it are that this last shift was accompanied by the first appearances of modern humans all over the world; and that contrary to the usual pattern of cold-adapted megafauna withdrawing to cooler climes and being replaced by warmth-adapted megafauna, both types shortly died out everywhere that humans had appeared, only to be replaced by nothing. If these extinctions could be looked at upon a larger timeframe that allowed for a more objective view of things - say, ten million years after the event, instead of ten thousand - it seems unlikely that there would even be a debate over human culpability.

The strongest evidence for overkill is found not in Pleistocene relics, but in the archaeological and historical records of our own times. During the last millennium, previously primal landmasses ranging in size from isolated oceanic specks of a few square miles to the entirety of New Zealand have been colonized for the first time by humans. And, as far as is known, every single landmass that was initially colonized by humans suffered a bout of extinctions soon afterwards, usually centered on the largest animals. This rule held true regardless of the location or climate of the landmass, heedless of the flora and fauna that it harbored, and wavered not a whit due to the cultural and technological background of the human colonizers. However, there still isn't a single documented historical case of any mammal or bird species, anywhere, dying out solely because of climatic change, not even during the most severe and prolonged heat waves or cold snaps.<sup>[165]</sup>

Compared to the lion's share of consideration given to the extinct mammals, little attention has been paid to the fate of the extinct vultures, whether of the New or Old Worlds. The only in-depth study of the problem that I know of is David Steadman and Paul Martin's 1984 paper "Extinction of Birds in the Late Pleistocene of North America," which concluded that the vulture extinctions were an



aftereffect of the loss of so many large mammals that the vultures depended on for food. Other commentators on the subject have been content to state much the same thing, regardless of whether they blame climate or humans for the mammalian extinctions. This explanation is probably true in a general sense; but a lack of ground sloths and Giant Deer is not the only reason that no Maltese Vultures or Howard's Condors haunt the skies today, and the absence of the megafauna is not, in itself, a convincing explanation for the ultimate fate of every extinct vulture species.

It must be said that the migration of *H. sapiens* across the globe was initially beneficial for vultures, and for other scavengers. Humans faced with such numbers of prey as existed in Eurasia during the Pleistocene are usually extremely wasteful in the utilization of their kills; they leave a lot behind. The most wasteful killing method of all, driving a herd of large mammals off of a cliff, must have been a dream come true for vultures, as it left an enormous pile of dead and dying animals, with only those on the very top of the pile utilized by the hunters. The remainder was left to the scavengers. If ice age Eurasia was a hunter's dream, the ice age Americas were more akin to a hunter's heaven. Most of the New World animals were completely unaccustomed to humans, never having experienced them at any time in their evolutionary history. Hunting these neophytes of slaughter must have been absurdly easy, particularly if the animals responded to the approach of potential predators by grouping together and attempting to face them down, rather than seeking cover or fleeing.<sup>[166]</sup> Such strategies are worse than useless against predators that can kill at a distance. Since the American animals had no prior experience of projectile weapons, they wouldn't even have recognized a narrow miss of spear or stone as a predatory attack; these blissfully ignorant creatures would have remained oblivious to the danger posed by humans until it was too late. The Clovis people who first arrived in the Americas only needed weaponry specialized for killing giant animals to take advantage of the easy bounty; and they had it, in the form of finely honed stone spearpoints up to six inches (15.3 cm) long. When hafted to a well-balanced spear, and fitted to a spear-throwing atlatl, a Clovis spearpoint was the prehistoric equivalent of an elephant gun: a weapon made for the very specific purpose of felling a giant animal. Considering that hunting was a way of life to the Clovis, rather than a sport or pastime, and that they lived all their lives among megafauna, their skill in tracking and killing the great beasts would have made even the most dedicated modern big game hunters look like paunchy weekend warriors.

Vultures have certainly taken ready advantage of more recent hunters' killing sprees; we'll see [in Chapter 8](#) that the relentless extermination of the Plains Bison in 19<sup>th</sup>-century North America resulted in a huge leap of numbers for the Turkey Vultures of the American West. An even closer modern analogue to the impact of ancient big game hunters can be found in Africa at the same time, as (mostly) European hunters suddenly woke up to the fact that there was one population of megafauna that had theretofore been overlooked, and began to slaughter the great animals with abandon. By the end of the "great white hunter" era in Africa, vultures were probably more numerous there than they ever had been before.<sup>[167]</sup> But these mass killings took place over short periods of only a few decades in any one location; could slowly-reproducing creatures like vultures really have begun breeding like the proverbial rabbits in order to take advantage of all this carrion?

In a word, no. Vultures cannot quickly raise more young in response to plentiful food, as more fecund animals can. Aside from the very long incubation and fledging periods required to raise a vulture chick, young vultures are usually dependent on their parents for feeding long after they have left their nests. This post-fledging dependence period lasts for several months even for small vultures; larger species, like young condors, may still depend on their parents for food more than a year after they've left the nest. This protracted period of dependence, coupled with the fact that most vulture

species lay only one egg (and the others lay only two), means that vultures can never be the beneficiaries of an overnight population explosion. Even if the Andes have been neck-deep with dead Guanacos for a decade, a pair of Andean Condors can't raise more than one chick every other year, because that one chick requires well over a year to hatch, fledge, and become independent of its parents. Considering the huge size of many of the extinct vulture species, their breeding rates may have been even slower; a pair of adult teratorns probably did well to produce three young in a decade.

However, a vulture population can still increase greatly in a short time, thanks to the reservoir of young birds that all healthy populations have. Under normal conditions, young vultures have a very high chance of dying from starvation before they attain adulthood and have a chance to claim a mate and a nest. If a surfeit of food was available, their hopes for survival would greatly improve. The mortality rate for first-year vultures might suddenly drop from 90% to 50%, meaning that five times as many birds would make into their second year, where their chances were better still. Meanwhile, the mortality rates for adult vultures would stay at their usual very low levels; there would be more and more young vultures, but no fewer adults. As long as the carrion supply remained abnormally abundant, this wouldn't be much of a problem, although good roosts would be increasingly hard to come by. If there was a sudden crash in the carrion supply, it would become a very big problem. Such sharp increases of vulture populations have been seen in modern times, during sustained slaughters of large animals such as those that took place in North America and Africa during the 19th century. These events were attended by incredible numbers of vultures, and formed truly impressive spectacles, but they also represented their ecosystems' last splurge of life before collapse - not unlike the last bloom of a rose before it dies.

The flower of ice age megafauna did wither away, but it's unclear how quickly the petals fell. The giant mammals may have slowly declined over thousands of years, or they may have been wiped out in a few centuries at the most, as postulated by the more extreme forms of the Overkill Hypothesis. In Eurasia, it appears that the former was the case, at least for the Woolly Mammoth; it's thought that a slow rate of growth for the human population was coupled with a slow decline of the mammoth population; until a point of no return was reached, when there were too few individuals left for the species to sustain itself. After that, the mammoth population went into a tailspin from which it would never recover.<sup>[168]</sup> In the New World, the process appears to have been somewhat quicker and less abetted by climate change; from 11,000 BP to 9,000 BP, mammoths and mastodons appeared regularly at Clovis hunters' killing sites. After 9,000 BP, there were no more of those giants to be found at the prehistoric abattoirs, only Bison.<sup>[169]</sup> In the Americas, it appears that the local extinctions of megafauna inevitably followed less than 2,000 years after the appearance of the Clovis, and most were far quicker, on the order of a few centuries;<sup>[170]</sup> still more than enough time for the gradual disappearance of their prey to be taken for granted, and ignored, by humans. The best evidence of the effects that these extinctions had upon vultures is found in the California Condor nests in the Grand Canyon. Dating of the large mammal remains found in the nests indicates that the local megafauna vanished about 11,000 years ago, and that if the Condors outlasted the loss of their primary sources of food, they didn't do so for long; they disappeared at the same time, or soon afterwards.<sup>[171]</sup>

Although many animals, vulture and otherwise, practiced the scavenging lifestyle during the Pleistocene, it was by no means an easy way to live; the unremitting competition and often-harsh climatic conditions saw to that. But the annihilation of the megafauna made it much, much tougher. Environmentalist revenge fantasies notwithstanding, species faced with this kind of threat don't work together in order to face it successfully. In modern times, massive human disruptions of ecosystems typically result in Malthusian free-for-alls that pit every species with similar requirements for survival

against every other; the end results of which are that many species vanish, and a few manage to adapt to the disruption, filling the vacated niches and becoming more numerous and successful in doing so. And there's every reason to believe that the loss of the giant Pleistocene herbivores, upon which so many large, powerful, and fierce scavenger-predators were sorely dependent, resulted in almost immediate ecological chaos.

In an article entitled "The Pleistocene Hunters Had Help," the biologist Daniel H. Janzen hypothesized that during the temporary situation after the Pleistocene large herbivores had been almost wiped out, but before the scavenger-predators had begun to starve en masse, the latter animals "should have provided quite intense or thorough predator pressure on the few remaining large herbivores and their offspring." He suggested a pattern of events in which nomadic human hunters moved into an area, killed megafauna until there was too little prey left to sustain themselves, and then moved on, leaving the few herbivores that were left to the native carnivores. The predators that were capable of killing megafauna would then finish the job that the humans started. At that point, there would be even more scavenger-predators than would exist in a wholly primal situation, thanks to the wasteful kills of human hunters. Janzen added that "large carnivores would have been especially resistant to decimation by starvation," and therefore could survive long enough to render the large herbivores entirely extinct, "because experienced individuals, while not able to reproduce on starvation-level diets, are able to subsist on small game, carrion, nonmeat foods, and rare or flighty prey available only to the most competent individuals."<sup>[172]</sup> And I agree, although I think that the "carrion" in that list should be underlined. By the end of the Pleistocene, a megafaunal carcass must have been a depressing though remarkable sight: a great heap of flesh that had somehow attracted every large carnivorous creature from miles around in a whirl of emaciated legs and weary wings; and that by its very presence drove these proud, tired beasts to fight desperately with each other for the right to stay alive just a little longer.

Such a situation would have been difficult for vultures; for although vultures are ecologically dominant over large mammalian carnivores - that is, they are more effective scavengers that consume much more meat<sup>[173]</sup> - there's no question that large carnivores are behaviorally dominant, in the sense that even a single big cat, hyena, or bear can (usually) steal a carcass from any number of vultures. Most of the time, that doesn't matter, since the speedy and energy-efficient vultures can discover and devour many carcasses that remain unknown to or out of reach of the large carnivores. But in a relatively small, isolated area where there are both large herbivores and large carnivores, such as East Africa's Ngorongoro Crater, there are likely to be few if any vultures; because a disproportionately large number of herbivores are killed and eaten by the carnivores, and even herbivores that die of accident or disease can be quickly located by the crowds of hungry carnivores packed into such a small area.<sup>[174]</sup> Unable to dominate their much larger mammalian counterparts and with their advantages of speed and efficiency neutralized, the vultures thus have to seek food elsewhere. There's evidence that by the Late Pleistocene, many carnivores were making efforts to consume every last part of whatever carcasses there still were, even at the cost of breaking their teeth by trying to crush bones with them.<sup>[175]</sup> If these mammals were willing to badly injure themselves for the sake of a little bone marrow, their reactions towards hungry vultures couldn't have been very friendly. This kind of localized hypercompetition likely helped to force the larger vultures into the remaining areas where there was still abundant food, such as seacoasts with an ample supply of marine mammal carcasses - a pattern of events that would help to explain the present-day distribution of the Andean and California Condors.

Partisan supporters of predation over scavenging would use this situation as evidence that the predators were adaptively superior to the scavengers; that they were more "self-supporting," in the sense that they didn't depend on outside forces to provide their meals. However, when pondering the situation that faced all meat-eating animals at the end of the Pleistocene, one must be compelled to wonder just which of them really were self-supporting. With the last of the megafauna gone, the extinctions of the great carnivores that couldn't immediately adapt to other sources of food - and not just temporarily, but *permanently* - were foregone conclusions. The same couldn't be said for the vultures; the supreme scavengers are not so easy to get rid of. These weren't fragile creatures of extreme specialization and rigid habits; these were birds that could fly hundreds of miles in the quest for a single meal, that could eat most any kind of meat in most any condition, and that possessed an almost reptilian ability to conserve energy, allowing them to survive for weeks on end without eating anything at all.

Yet perhaps the most important trump card for the vultures was their longevity. Large carnivores aren't particularly long-lived animals; most are well past their prime by their tenth birthdays, and none of the cats, dogs, or hyenas are known to regularly reach the age of 20 in the wild. Vultures can do much better; as long as they could still find enough food to keep themselves alive, they could wait for smaller herbivores to take the place of the extinct giants - for several decades, if necessary. Historical evidence from 19th- and 20th-century Europe has demonstrated that small populations of vultures, even isolated individuals or single pairs, can survive in harsh environments for many years after all reproductive activity has ceased.<sup>[176]</sup> Comparing the relative strengths of vultures and mammalian carnivores in his essay "The Adaptations of Scavengers," the biologist David Houston envisaged

a situation when food for animals which feed exclusively by scavenging would be so scarce that breeding would be impossible for a number of years. A small population of bird scavengers could survive such conditions for perhaps forty or fifty years. When food conditions again become favorable, the population could reproduce, while any mammalian competitor would have joined the fossil record.<sup>[177]</sup>

And so they did; while the vultures were hard-hit by the megafaunal extinctions, the fact remains that the survival rate of even the large vultures was higher than that of the large mammalian carnivores. The Andean Condor, California Condor, Monk Vulture, and Eurasian Griffon are all still alive; the Saber-toothed Cat, Giant Short-faced Bear, Cave Lion, and Dire Wolf are not. "Self-supporting," indeed; while predators must depend on their wiles to feed themselves, the vultures have death on their side, and death never takes a holiday.

It does sometimes take things too far, especially when impelled by its sapient servants. As the megafaunal populations collapsed, perhaps most of the older vultures, with the advantage of years of experience, still would have been able to find enough food. But the scarcity weighed heavily on the younger birds, the only potential future for every species. When carrion from large mammals suddenly became scarce, the legions of young vultures hatched and raised during the bounteous aftermath of overkill would have faced near-certain death. Faced with the extirpation of their primary food sources, and outcompeted by adults for what little carrion there was, the great numbers of juvenile vultures simply died. Not at the levels that would keep their species healthy; at much higher levels, too high for populations to be sustained. With a shortage of food, nestlings would grow more slowly and weigh less at the time of fledging; their parents would be forced to leave the nest unattended more often in their search for carrion, meaning that many chicks would die from exposure or predation. And, if a clutch of eggs was destroyed, the scarcity of food would make it more



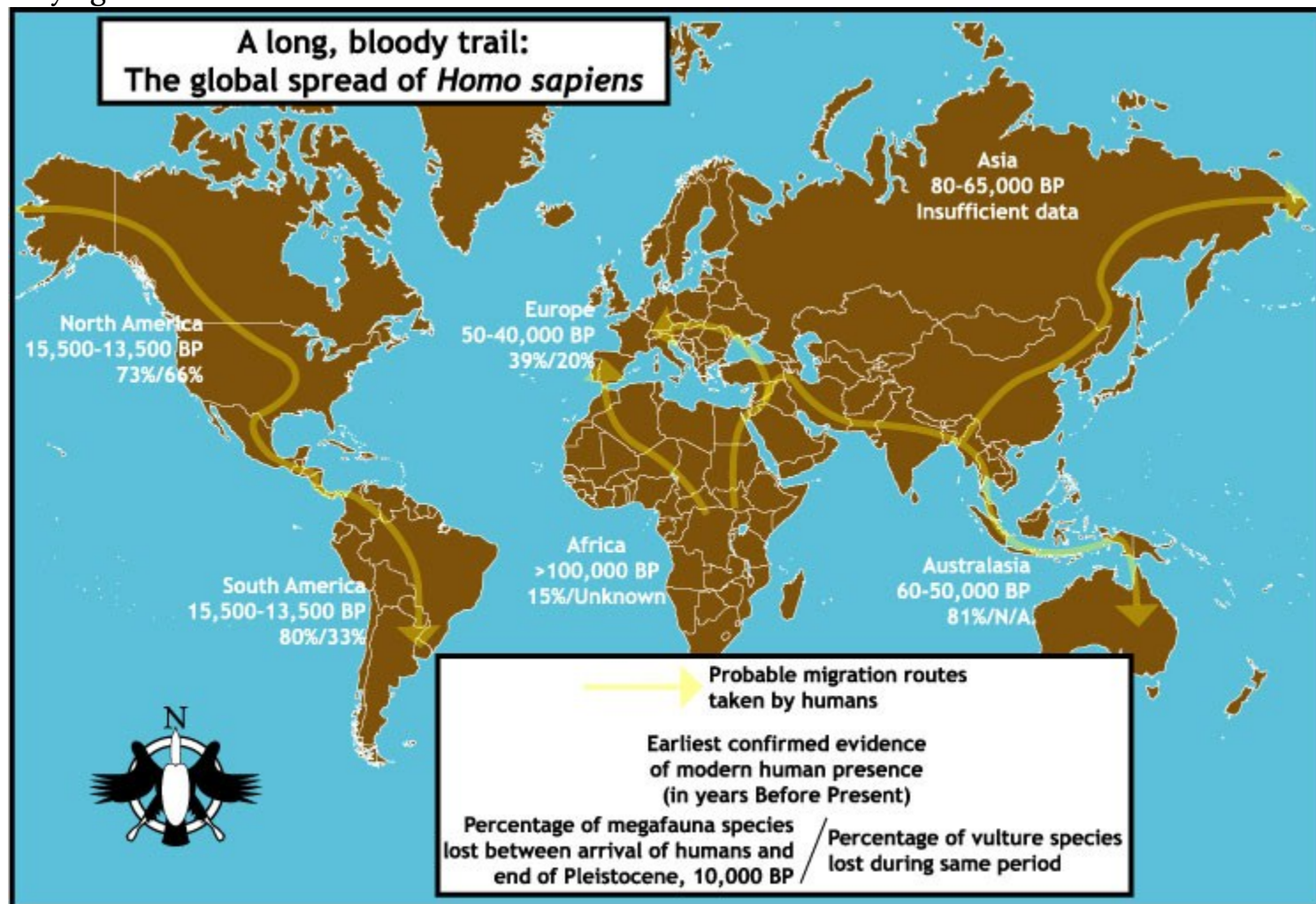
difficult for a malnourished female to lay a replacement clutch.<sup>[178]</sup> In the last years of Merriam's Teratorn, the Maltese Vulture, and the Clark's Condor, the adults of those species probably weren't breeding at all, since there wasn't even enough food to keep themselves alive. It should be added that though there isn't much hard evidence for it, humans were almost certainly killing adult vultures in substantial numbers by the end of the Pleistocene; possibly for ritual purposes, or for their feathers, so useful for fletching arrows; and in the worst times maybe also because the birds were unwanted competitors for a scarce and much-needed resource.

If the collective coffin for the extinct vultures still required another nail, fate had one at hand. Vultures that are dependent on large carrion, as most of the extinct species evidently were, face a problem when raising their young: the fat, muscle, and organs of large animals are very poor in calcium. Like any other young vertebrates, vulture chicks require calcium for growth; if they don't get it, they develop osteoporosis (rickets), which deforms their bones and ensures that they will die when they attempt to leave the nest. Vultures that take live prey or small carcasses can bring those to their young, ensuring a sufficient supply of calcium; but large-carcass specialists like condors and griffons normally include nothing but meat in their diets, leaving them with the problem of providing some kind of calcium supplements for their young. Many living vultures solve this problem by feeding their chicks the fragments of bones that have been shattered by large carnivores, especially hyenas.<sup>[179]</sup> Eurasia and North America both had carnivores that habitually crushed bones with their teeth (Cave Hyenas and Dire Wolves, respectively), and so provided bone fragments for vultures to carry back to their young. The extermination of bone-crushing carnivores has been a major cause of modern vulture chick mortality in Africa,<sup>[180]</sup> this unfortunate situation may be a case of history repeating itself, as the Dire Wolves and Cave Hyenas were lost in the Pleistocene extinctions.

And this is also where the loss of other vulture species becomes a factor; because in the present day, some Old World vultures depend on Lammergeiers, not mammalian carnivores, to provide their calcium supplements. In Europe, Eurasian Griffons are often seen exploring Lammergeiers' ossuaries in search of fragments from the bones that have been dropped there. These fragments are important enough to the Griffons that they will actually pirate them from Lammergeiers while the latter are engrossed in their bone-dropping rituals, with as many as five Griffons seen attacking a lone Lammergeier at once in order to steal its meal. Overall, it seems that Griffons greatly benefit from having Lammergeiers nesting nearby, as the presence of the bone-breakers ensures them a readily available source of calcium.<sup>[181]</sup> As we've seen, there's reason to believe that the extinct Errantgeier of North America was also a bone-eater; and if it was, its specialized diet likely doomed it to be the first of the vultures lost when humans invaded the New World. In modern Old World ecosystems badly disrupted by humans, the Lammergeier is usually the first vulture to disappear,<sup>[182]</sup> and readily available fragments of bone disappear with it. With local Errantgeiers gone, large vultures such as California and Clark's Condors may have had great difficulty in finding calcium for their chicks; and with the loss of one species, the guilds of these vultures - the interlinked communities of different species that lived in the same area and often met at the same carcasses - would be badly disrupted.

The relationships that sustain vultures' guilds are very complex, often involving three or more species. In Africa, White-headed Vultures flying at low altitudes often locate carcasses before other scavengers do. Their discoveries attract higher-flying White-backed Vultures, and still higher-soaring Griffons watch and follow them. If the carcass is very large and has an intact hide, no bird will be able to feed from it until a Lappet-faced Vulture arrives and tears it open with its huge bill. Small Hooded and Egyptian Vultures might stop by and pick up scraps that the bigger vultures missed; and if the carcass lies in a mountainous area, Lammergeiers will seek it out after other vultures have stripped it

of flesh, in order to devour the bones. If one or two species were removed from this guild, the other species would probably survive, though with more limited options; for example, if the Lappet-faces were to die out, the other vultures would be unable to feed from very large, fresh carcasses (mammalian carnivores could still rip them open, but they would be much less willing to share). But like any other structure, a vultures' guild can only withstand so much damage before it collapses, burying its inhabitants in the rubble.



In Europe, at least, the Pleistocene extinctions were not quite that severe. The Maltese Vulture did die out, but so did almost all of the giant mammals that it was adapted to feed on, leaving the smaller vultures with smaller carcasses that they were capable of dealing with. Probably the most significant effect of the Maltese Vulture's extinction on its guild was that it rearranged the dominance hierarchy of the European vultures, with the Monk Vulture assuming its mantle as the top bird at carcasses; what effect, if any, this shuffling had on the other species is difficult to determine. The European vultures' guild survived the extinctions mostly intact, but not without loss. Though the vulturine fossil records for Asia and Africa are much poorer than Europe's, their guilds were probably no more damaged, as the fossil records for their megafauna indicate that their extinctions were no more severe than those of Europe. North America's vulture guild, on the other hand, suffered a near-complete collapse, as did the guild of South America's non-forest vultures. Two-thirds of the species in the North American guild vanished at the end of the Pleistocene; the unique mix of New World vultures, pseudo-Old World vultures, and teratorns that had been living together for millions of years

vanished forever. South America lost all but one of its condors. We can only begin to guess at the enormity of the impact of these extinctions upon the surviving vultures.

Despite the scavenger's nightmare of the Pleistocene extinctions, about two-thirds of the world's vultures did survive. The African and Eurasian birds were not struck by such a sudden and dramatic shortage of food as were the New World birds, and many of those continents' large animals made it into the post-Pleistocene period, which is why most of the Old World vultures managed to carry on. In the Americas, the three Turkey/Yellow-headed Vultures not only survived, but apparently became more numerous; the Black Vulture likewise pulled through. All of these small vultures have one thing in common: they typically lay clutches of more than one egg, and they can breed every year. If they suffered a population crash at the end of the Pleistocene (and the Black Vulture probably did, judging from its present-day feeding habits), their more numerous eggs and chicks ensured that they could recover much faster than the larger vultures. Additionally, these species, together with the bigger, slower-breeding King Vulture, inhabit the tropical forests of Central and South America. The forests did not lose their large mammals, or the tree sloths that make up much of the forest vultures' food. The pioneering humans of the Clovis era did penetrate these forests during their trek southward, but jungle animals don't form huge herds, and hunting large mammals in a jungle depends largely on ambush strategy; the mass killings so popular on the plains were not possible there. The forests pulled through the extinctions with their large animals, and their vultures, largely unaffected.

There still remains the problem of why, if all of the other large vultures died out in North and South America, each of those continents still retained a species of condor. These very large species did have certain obvious advantages over other scavengers when carrion supplies came down to the wire. In the present day, the California Condor is normally dominant over all other avian scavengers that it encounters except for the Golden Eagle, and the Andean Condor is even more unchallenged in its primacy over other birds (and over smaller scavenging mammals like foxes, as well). It's easy to imagine condors monopolizing what carcasses there were, while other scavengers were forced to go hungry. Furthermore, the California Condor was a relative generalist, at least when compared to the other large vultures of North America; it didn't have the specialized anatomy of the Clark's Condor or Merriam's Teratorn. We've already seen that long before the end of the Pleistocene, California Condors were likely feeding on many types of large animals, including marine mammals. This strategy was a stark contrast to that of Merriam's Teratorn, which ate mostly terrestrial mammals, and still more unlike that of the Occidental Vulture, which during the Pleistocene appears to have eaten only *certain types* of terrestrial mammals.<sup>[183]</sup>

This willingness to eat seafood is probably the key to the survival of the condors to the present day. Both of the surviving condors inhabit strongholds along the Pacific coasts of their respective continents that are shielded to the east by high mountain ranges (the Rockies in North America and the Andes in South America); considering the many differences in terrain and climate between North and South America, this similarity is unlikely to be merely coincidental. Even as the interiors of the Americas were emptied of large mammals, their Pacific coasts still offered a steady supply of carrion, in the form of beached whales, dead fish, and other marine life that washed up on the shore. The seacoasts also offered ample mineral supplements, in the form of shellfish, whereas the continental interiors suffered a drastic lack of bone fragments after the bone-crushing carnivores had vanished. Clam, oyster, and mussel shells are composed of calcareous materials, and could easily substitute for the calcium found in bone fragments when fed to young vultures. The Andean Condor still makes use of this resource to raise its young,<sup>[184]</sup> as did the California Condor until modern human encroachment restricted its access to the seashore.<sup>[185]</sup> Judging from the contents of prehistoric Condor nests, the



tradition of foraging for shellfish is many centuries old, and it likely helped to sustain a last line of defense against the extinction of these great birds.

Chemical studies of California Condor fossils dating from the Pleistocene indicate that only in California did this species feed heavily on seafood (and even there, only part of the population did so); elsewhere in North America, the Condor's diet consisted exclusively of land animals.<sup>[186]</sup> Not even Condors dwelling in the seemingly similar environment of Florida could survive without megafauna, due to differences between the Pacific and Atlantic currents that result in less productive waters and far scarcer marine mammals along the Atlantic coast.<sup>[187]</sup> When and if the Pleistocene fossils of Andean Condors are similarly studied, we can expect similar conclusions to be drawn for that species. Certainly, modern Andean Condors are no less apt to feed on seafood than their northern counterparts; and unlike the California Condor, they've been documented to prey on the eggs and chicks of seabirds as well. In recent times, Andean Condors have even been seen out at sea, feeding on whale carcasses that were still afloat.<sup>[188]</sup> For these two species, if for no other large vultures, the blubber of marine mammals provided a palatable, though salty, substitute for the fat of the vanished ice age megafauna. (The lesson, I suppose, is that if you're grateful for the sight of a condor, you should thank a whale - or a salmon.)

It seems, then, that the oft-repeated assertion that the large vultures of Europe and the Americas died out because the large mammals did is essentially true, if rather oversimplified and underdramatic. But any pat explanation has its problems; and perhaps the biggest one for this explanation is found in the diminutive form of the American Vulture, because there is nothing in that bird's anatomy, or in the habits of its living counterpart, the Egyptian Vulture, to suggest that it depended on the carrion of large animals for food. If the American Vulture behaved anything like the Egyptian Vulture, it would hardly have noticed when North America's megafauna died out. Perhaps it would've missed the excrement of large mammals - a food source that the Egyptian Vulture sometimes partakes of - but it is very unlikely that it ate droppings exclusively. A bird like the Egyptian Vulture, which feeds largely on eggs, insects, and small animals either dead or alive, would not be tragically affected by a lack of multi-ton mammals. Even so, the American Vulture's extinction, though ultimately human-induced, may have had other accomplices.

By the end of the Pleistocene, all of the animals that depended on large mammals for food were trapped in a cycle of competition for a scarce and vital resource. In such a situation, one would expect that the species which ultimately survived held some kind of advantage over the species that didn't. The record of extinction and survival for both vultures and large mammalian carnivores suggests as much. In the Americas, the large carnivores that survived are not exclusively dependent on large mammals for food; they can either prey on smaller animals, as in the case of the Gray Wolf and Mountain Lion, or are omnivorous with broad-based diets, as with the surviving bears.<sup>[189]</sup> The advantages that allowed certain vultures to survive most likely lay either in their ability to find food that other vultures can't - as with the Turkey and Yellow-headed Vultures, which can locate carcasses by scent - or in the more nebulous ability to dominate other scavengers. Compared with the other small vultures of North America, the unfortunate American Vulture would have been at a distinct disadvantage during the megafauna extinctions and afterwards; for it probably didn't compete socially for food, like the Black Vulture, and it definitely couldn't find food by scent, like the Turkey Vulture. The Black Vulture lives in groups and uses those groups to dominate other scavengers; the same can probably be said for its extinct relative, the Occidental Vulture. It certainly seems plausible that Black Vulture or Occidental Vulture packs were dominant over the American Vulture; fossils at La Brea do indicate that Occidental Vultures were far more common in the area than American Vultures.<sup>[190]</sup> An



interesting behavioral parallel to this situation can be found with the American Vulture's living counterpart, the Egyptian Vulture. Throughout most of its range, the Egyptian Vulture seeks out human settlements when searching for food; but in Africa, it's often excluded from those areas by the similar-sized yet more aggressive and sociable Hooded Vulture. The sudden influx of humans into the New World would have provided many new opportunities for small, opportunistic scavengers; and though it seems odd that the destroyers of the megafauna could simultaneously become the saviors of some of the smaller vultures, humans are nothing if not inconsistent in their effects upon animals. Certainly, both the Black and Turkey Vultures have learned to associate with humans (to varying degrees), and the only known post-Pleistocene fossil of an Occidental Vulture was found in an ancient garbage dump in Oregon.<sup>[191]</sup> If the American Vulture was beset by these competitors - the Occidental Vulture and Black Vulture in the west and south, and the Turkey Vulture everywhere - during a time when there simply wasn't enough carrion to feed three different small vultures, when the best feeding opportunities around human settlements were monopolized by more aggressive birds, and when the warming climate was causing open habitats to vanish beneath forests severely inimical to a bird that depended exclusively on sight for finding food, then its extinction becomes more easily explained.

The disappearance of the other North American vulture anomaly, the Errantgeier, isn't quite so hard to fathom. If it really was an American counterpart to the Old World Lammergeier, and depended on the bones of large mammals for food, then its extinction likely was a direct result of the megafaunal extinction. And yet, matters are confused somewhat by the fact that it wasn't only the vultures that died out; North America also lost at least three eagle species at the end of the Pleistocene, and even the living Bald and Golden Eagles appear to have become much scarcer after the extinctions.<sup>[192]</sup> Juveniles of the latter two species tend to depend on carrion to survive; in that sense their population crash was probably not unlike that of the vultures, although it was nowhere near as severe. The evidence that the extinct eagles fed heavily on large carrion is doubtful, to say the least (none are common at La Brea, compared to the numerous vultures or the Golden Eagle<sup>[193]</sup>). Perhaps these eagles, as well as some of the extinct vultures, were hurt by a lack of nesting sites as the newly arrived humans began warping North America's landscape with fire; but there's no hard evidence for this one way or another. The mystery of the extinctions lives on; the birds at the center of it unfortunately do not.

So ended the Pleistocene, and the curtain fell upon what we might call Act I of the human-vulture saga. At the beginning of the next geological epoch, the Holocene, the worldwide human population stood at about 10 million individuals.<sup>[194]</sup> A small number by today's crowded standards, but it is an enormous population for a large omnivorous mammal at the top of the food chain, and it would only get larger in the years to come. At the beginning of the new epoch, the Holocene, many humans had finally come full circle since the age of the dawn people; they were living among the trees again. The retreat of the glaciers had opened up vast areas of land, and the general increase in temperature allowed forests to thrive and spread. Humans began to alter the landscape in recognizable ways with fire, and started to domesticate plants and animals for their own use; in short, the roots of modern human history can be traced back to this era.

There was still new land to be found over the seas, along with a few large land animals that hadn't yet learned to fear the naked apes. One of the strongest arguments against the climatic theory of the megafaunal extinctions is that the outlying islands of North America and Europe (in the Caribbean and Mediterranean Seas, respectively) didn't suffer extinctions at the same time as did the mainland; most island animals pulled through the horrors of the Pleistocene/Holocene boundary unscathed. From a point of view that expounds a climatic cause for the extinctions, this makes no

sense; if anything, the global climatic changes should have affected the islands and their fauna *more* severely, since the island animals would have had fewer refuges to retreat to than their continental cousins, and all the while the melting ice caps would be swamping much of their available land and fragmenting them into smaller and more isolated populations. But it makes perfect sense from an overkill standpoint, since the final moments for the islands' large animals came when humans first arrived on their shores.

As the minifauna of Corsica, Crete, and Malta lasted until the arrival of the first *Homo sapiens* settlers, a few Maltese Vultures probably survived into the Holocene on those Mediterranean islands as well; though there are as yet no Holocene-dated fossils of the species to prove this.<sup>[195]</sup> However, some of the latest Maltese Vulture fossils *have* been found in apparent association with human artifacts and remains,<sup>[196]</sup> which rather strongly suggests that humans had something to do with the demise of Europe's greatest raptor. The islands of Corsica and Sardinia, closely abutting the Italian peninsula, were probably the first to be settled. There's no clear evidence for *H. sapiens* habitation on Corsica or Sardinia before 9,000 BP, but the situation is muddled somewhat by indications that another human species (likely the Neanderthals) had arrived on those islands by 20,000 BP.<sup>[197]</sup> The expected adverse effects on the islands' large mammals may explain why the youngest Maltese Vulture fossils on Corsica peter out soon afterwards, at about 17,000 BP.<sup>[198]</sup>

Interestingly, the Lammergeier – supposedly the most specialized and inadaptably of Europe's vultures – did survive on Corsica, despite the extinction of its primary food source. Some of Corsica's caves hold accumulations of fossilized bones that were originally thought to have been accumulated by humans or mammalian carnivores; however, study of the bones has revealed that they show the same patterns of breakage and digestive scarring as bones eaten and regurgitated by modern Lammergeiers, and thus could only have been accumulated by those bone-breaking vultures. The bones are overwhelmingly of the Corsican Deer, a close but much smaller relative of the mainland Giant Deer, that stood about 60 cm (2 ft) high at the shoulder.<sup>[199]</sup> As this Deer was the only large herbivorous mammal found on pre-human Corsica, it can be safely assumed that it was also the primary if not only source of food for the island's Maltese Vultures.<sup>[200]</sup> The Deer vanished, presumably due to human hunting, at the end of the Pleistocene, and Corsica's Maltese Vultures soon followed it into extinction. The most likely reason why the Lammergeier survived while the Maltese Vulture perished is simply that the latter species had a much larger appetite; as a Maltese Vulture was about twice as heavy as a Lammergeier, it assuredly needed more and larger carcasses to sustain itself, and the first domestic animals brought by the Corsicans may not have been numerous enough to sustain it. The Lammergeier's unique ability to subsist on bone may also have played a part, as it would have been able to feed on livestock skeletons abandoned by early settlers after they had been stripped of meat. The Maltese Vulture had no such option, and thus may have been unable to adapt to humans or their livestock. The island's Lammergeiers were well able to do so; in fact, Corsica was one of the few areas in Europe that harbored a thriving population of Lammergeiers into modern times. Today, the vultures feed mainly on Cattle, Goats, domestic and feral Sheep, and Wild Boar, all of which were introduced to the island by prehistoric humans.<sup>[201]</sup>

The Pleistocene bird remains of Crete have not been dated directly, but their association with the abundant remains of a Late Pleistocene mouse indicates that they survived at least into the past hundred thousand years,<sup>[202]</sup> and more likely than not up until the arrival of *H. sapiens*, which arrived on the island sometime around 7,500 BP.<sup>[203]</sup> The first humans to reach Crete must have been privileged to witness a raptor-lover's paradise, as the Cretan skies were crowded with Maltese Vultures, Monk Vultures, Lammergeiers, Eurasian Griffons,<sup>[204]</sup> and a subspecies of the Golden Eagle that had

become huge, apparently as an adaptation for preying on that island's dwarf deer.<sup>[205]</sup> Crete's strange dwarfed and oversized mammals were all exterminated by humans; the Maltese Vultures and giant eagles probably vanished at about the same time, although the other vultures managed to survive on the island with reduced numbers (at least for a while). This pattern was repeated all across the Mediterranean, with large raptors almost invariably vanishing or suddenly becoming much rarer after humanity's relentless tide washed up on their islands.<sup>[206]</sup> If we assume that the most isolated islands of the Mediterranean were the last to be reached by humans, then Malta itself may have been the very last refuge of the Maltese Vulture, though there's no direct evidence that this was so. It wouldn't have been much of a refuge, regardless; by the Late Pleistocene, its land bridge with Sicily was submerged,<sup>[207]</sup> and the island of little more than 120 square miles (311 km<sup>2</sup>) couldn't possibly have supported more than a few breeding pairs of the giant vultures. Whatever large animals were left on Malta didn't long survive the arrival of humans there, before 7,000 BP.<sup>[208]</sup>

A similar situation prevailed with the Caribbean Sea and its Cuban Condor. The earliest human colonists of the Caribbean apparently depended heavily on seafood rather than the meat of large mammals, and this dietary preference that may have amounted to a stay of execution for some of the latter - but only for a time. The last fossils of Cuba's giant ground sloths date from about a millennium later than the earliest known Cuban human artifacts, which were left roughly 5,200 years ago.<sup>[209]</sup> Subject to the same fate as its mainland cousins, the Cuban Condor was lost, as they were. If its extinction was correlated with that of the sloths, it vanished a little over four millennia ago, not long after the Great Pyramid of Giza was erected in Egypt; which means that the Cuban Condor likely has the melancholic distinction of being the last known vulture species to be driven to extinction, to date.

We shouldn't think that all of the individuals of a given extinct species simultaneously dropped dead, as is all too easy to infer from a static fossil record. Even on the islands, the extinctions must have taken decades. Some populations of a given species held out longer than others; in North America, it's thought that mammoths and mastodons may have survived past the boundary between the Pleistocene and Holocene in a few isolated areas.<sup>[210]</sup> The extinctions were piecemeal; populations became isolated from one other, the smallest eventually dying out from lack of food or lack of mates, and thus couldn't reproduce before expiring to age or disease. Even those species that did survive were far from unaffected; some survivors were driven right to the brink of doom before they managed to recover. Cheetahs, for example, were extirpated from the New World, Europe, and much of Asia; and though they survived in Africa and southern Asia, it was a close-run thing. Genetic studies of living Cheetahs suggest that their total world population may have been reduced to fewer than *ten* individuals at the time of the extinctions.<sup>[211]</sup> A little more pressure, a small quirk of fate, and the world's fastest land animal would have been one more species known only from fossils.

Some of the animals that did survive, such as the American Pronghorn, had numerous close relatives that were lost, a pattern suggesting that their survival was due to chance more than anything else. Other survivors were descended from ancestors that already had contact with humans, and thus knew it was wise to be wary around the featherless bipeds; still other species owed their survival to inaccessible habitats like high mountains, arctic tundra, or deep tropical forests.<sup>[212]</sup> Despite the more equable weather of the Holocene, even the warmth-loving large mammals were now unable to extend their ranges as they had during earlier interglacials; and despite the countless now-empty ecological niches for large animals, most of the survivors were now smaller than their immediate ancestors.<sup>[213]</sup> Smaller, and probably a good deal warier. If there's any consolation to be found among the vulturine extinctions, it's that most of the extinct Pleistocene species left surviving relatives; the Occidental Vulture left the Black Vulture, the extinct condors left the Andean and California Condors; and (if one

accepts the theories of origin explained here), the Errantgeier and American Vulture left the Lammergeier and Egyptian Vulture. But the exceptions loom large, figuratively and literally; where are the living counterparts of the Maltese Vulture, the Clark's Condor, or the teratorns? One can cogitate endlessly upon the question of why these birds needed to be so large; but it's fair to say that the conditions that allowed them to become giants no longer existed after the Pleistocene. The Holocene world was smaller in so many ways; these avian colossi were simply too big for it.

The vultures that survived the great dying endured in this empty new world as best they could. Some species, especially the smaller ones, emerged from the shadows of their dead cohorts to thrive. In North America, Turkey Vultures exploited the sudden absence of competition to become much more numerous; after the extinctions, Turkey Vultures became very common fossils at La Brea, though they had been quite rare there during the Pleistocene.<sup>[214]</sup> The warmer climate benefited them as well; whereas almost all of North America would have to have been vacated by them during the Pleistocene winters, Turkey Vultures could now stay through the winter as far north as New York. The Egyptian Vultures of Africa and Eurasia charted a similar course; although their guilds were not so badly mauled of those of the American vultures, they had become accustomed to following nomadic humans, and thus were well placed to take advantage of the events to come. Africa's Hooded Vultures would soon adapt to human villages, and their numbers would then increase exponentially. Other vultures, with their guilds shattered, their preferred prey gone, and their homes now under the permanent sway of humans, would face a long and not necessarily winning struggle to survive. Still, every vulture that lived on would become grist for the mill of human imagination.

Surprisingly, the effects of the extinctions upon humans are harder to deduce. In my opinion, the question has been universally downplayed, sometimes to the extent of being ignored entirely. Most writers seem content to treat the extinctions at the end of the Pleistocene as nothing more than a biological event; a largely irrelevant backdrop to the drastic shift in climate, and certainly not as any kind of cultural milestone. This is a mistake. Ever since the australopiths had emerged from the trees and sought their way on Africa's plains, the megafauna of the world had been humankind's constant companions. For millions of years, humans had been dwarfed by fellow beings that were predators, prey, competitors, and inspirations. The giant mammals were not just a superb source of meat; they were the single most important inspiration for visual art, as the cave walls of Lascaux and many other prehistoric sites of rock art plainly show. They were vital to religious rituals. If today's folklore is anything to judge by, the myths and legends of the Cro-Magnons and Clovis were rife with their familiar animals. And, as the archaeological record of the ice ages amply attests, the very existence of the megafauna was a critical spur for cultural development; but, as we now live in a world in which technology, rather than biology, is the defining force behind human existence, we can't really imagine just how deep and profound the effects of the great dying really were upon the people alive at the time. Regardless of the causes of the extinctions, the fossil record indisputably shows that by the beginning of the Holocene, the world was emptier of large-scale animal life than it had been *at any time during the entire evolutionary history of humanity*. The drastic changes seen in archaeological artifacts dating from this time were only reactions to the shift from the Pleistocene to the Holocene. The shift itself was epochal. Not only had humans wreaked such drastic changes to the world that their legacy of extinction would now be preserved for all time in the fossil record, but they had ensured that the Age of Megafauna would be succeeded only by the Age of Man.

Written language would not appear for more than four thousand years beyond the end of the Pleistocene; once the last of the Clovis and Cro-Magnon hunters died, there would be no eyewitness accounts to tell of what once was, and what had been lost. The people who saw the last days of the age



of giants surely did tell their children of the wonders that they used to see daily; we can imagine a parent stretching their arms as they illustrated for their wide-eyed children the vast wingspreads of the avian leviathans that had once haunted the lifeless bodies of antediluvian monsters. But a few decades afterwards, the last person who had been privileged to see a living teratorn or Maltese Vulture would have passed away themselves; and so personal experience would pass into myth, the memories of the giants growing dimmer as their time drew more distant. These extinctions happened so long ago (about 500 human generations, if we use the end of the Pleistocene as a baseline) that there can only be few mythic vestiges of the lost vultures left. That isn't to categorically state that there aren't *any*; perhaps there is something of the extinct condors and teratorns in the thunderbirds of Amerindian myth, and possibly there is a faint echo of the Maltese Vulture in the Near Eastern roc or the various giant "eagles" of Eurasian lore. There could even be some kind of atavistic memory at work behind the scenes of the many modern tales and sightings of gigantic, vulture-like birds. No one can say for certain, and we won't detain ourselves with idle speculation that the void left by these creatures must be filled by imagination, even if it can no longer be filled by feather, flesh, and bone.

It does seem a pity that these extinctions have had to be reported here, so early in the saga of *Carrion Dreams*, when most of the wonders of humanity's relationship with the living vultures have yet to be revealed. (The tyrannies of chronological organization!) I therefore have a humble request to make of you, dear reader: When digesting the chapters yet to come, and upon seeing what has been made of the living vultures, take a few moments to stop and consider what humanity might have been made of the extinct vultures, if they had survived. In the next chapter, when marveling at [the role of the Lammergeier in the Persian Empire](#), feel free to ponder if one or another of the most powerful Amerindian tribes could have made similar use of the Errantgeier, and if that strange bird could have become *their* bestower of royalty and *their* symbol of imperial might. Upon reaching [Chapter 9](#), and realizing that many pioneers of manned flight were honored to use the living vultures as inspirations for their work, spare a thought for the gargantuan Merriam's Teratorn, and wonder if its survival to the present day might have inspired would-be aviators still more forcefully; perhaps so much more so that the great accomplishment of heavier-than-air flight would have been achieved at an earlier date. And while perusing [Chapter 7](#), take a welcome breather from the litany of scorn and ridicule showered upon Europe's vultures, and ponder if the sheer size and majesty of the Maltese Vulture just possibly could have overcome the regional disdain of scavenging and scavengers; to the point where it might have chosen by Europeans as a symbol of nations and as a figure of benign power, as the Andean Condor was chosen by the people of South America. Imagine a world in which these creatures that once purified our planet and darkened our skies still did so, with our enthusiastic blessings; and do this not for the sake of fantasy, or regret, but for the sake of remembrance. Maybe it can help to ensure that such magnificence isn't again driven into the earth.

## Chapter 3

# What Suckles At Dawn, Purifies At Noon, and Swoops At Dusk?: The Vulturine Near East

My head is a vulture; I will ascend and rise up to the sky.

-Pyramid Texts, Utterance 53 (relating to the ascension of the King) (translated by R. O. Faulkner)

The best lord is he who resembles a vulture surrounded by carrion, and not he who resembles carrion surrounded by vultures.

-Ibn Mukaffa, *Kalila wa-Dimna* (translated by F. Viré)

The venerable and wise Emperor Solomon had seen countless wondrous things during his many journeys. He had witnessed spectacles that would take the most jaded person's breath away, and sights that ordinary people could only dream of; even so, he had never had he set eyes upon such an enormous and incredibly ornate palace as that which he encountered while making his way through Egypt. It rose from the desert sands like a beacon of magnificence, seemingly too glorious for this world; but Solomon saw as he approached it that it was no mirage, no trick of the heat. It was real.

Such a grand edifice should of course be guarded by legions of soldiers, and attended by servants beyond number; but Solomon saw no one as he approached it. The battlements were unpatrolled, the walkways untrodden, the balconies unrested upon; in short, the palace seemed to be deserted. Intrigued enough to grant the palace a close inspection, and yet not wanting to intrude, Solomon called out at the gates, announcing his presence and asking whose citadel this might be. No one answered; there wasn't a sound to be heard, save for the wind whistling along the high walls. Unperturbed, Solomon walked into the palace, marveling at its esoteric and beautiful decoration, at its vast halls that could contain many thousands of people with room to spare; and yet there was no one there, not a living soul. Not even a lone rat showed itself; the palace was entirely empty of life. Disappointed that such a grand construct could be so callously abandoned to the elements, Solomon turned to leave. But then, as he was retracing his steps, he saw a lone shape walking towards him. It was much shorter than he was, not much bigger than a Chicken, in fact; but it moved powerfully and with purpose, clearly not a creature to be trifled with. As it approached Solomon, it spread its great, dark wings, and ruffled out the long, sword-shaped feathers covering its neck and cranium. The bare skin upon its face shone like recently unearthed gold. There could be no mistaking this being; it was *Ak Baba*, the White Father, an Egyptian Vulture.

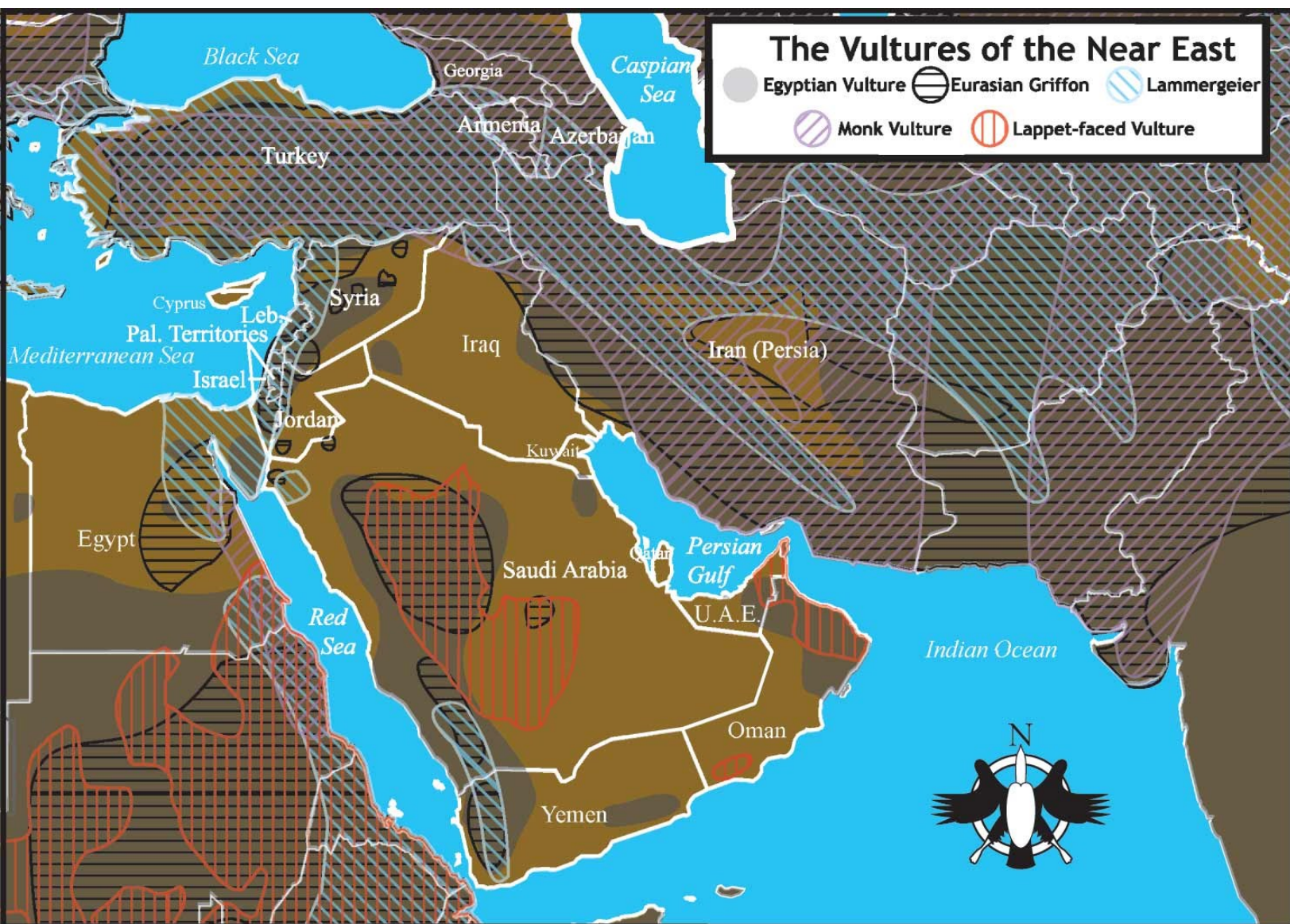
As every child knows, Solomon could understand the languages of birds and other animals, thanks to a magical ring in his possession; and of course birds readily comprehend human languages. Indeed, they take delight in eavesdropping on the conversations of men and women and gossiping with each other about what they've heard. And so Solomon was able to question the vulture. He asked: Why was this grand palace deserted and abandoned? Why had he seen no other people there, and no other living thing save the vulture? Why was the vulture all alone, in this palace of nothingness?

The vulture listened quietly to all of Solomon's questions, and then answered each one. He was there to guard the palace, he said, from whatever intruders might appear; but, alas, he could no longer remember why the palace was deserted. After all, Solomon was the first human that the lonely bird

had seen in a solid 700 years; his memory of such things was bound to be getting a little rusty after all that time.<sup>[4]</sup>

This fable goes a long way towards explaining why the Arabic expression *a'mar min al-nasr*, "longer living than the vulture," is intended to be understood as hyperbole, rather than as fact. What could possibly live longer than a vulture, a bird that can (at least in stories) be confidently placed on guard duty for centuries at a time? And what could compare in longevity to the Near Eastern cult of the vulture, which has persisted in one form or another since long before recorded history began?

Accepted history understands that the Near East has served as the fountainhead for many of humanity's landmark achievements. Three of the current world's most powerful religions started here, as did a number of earlier faiths that once held great sway. The area has always been the crossroads of the Old World, where people and their ideas and beliefs can move from the lands bordering the Mediterranean Sea south to sub-Saharan Africa, northwest to Europe, or east and north to the vastness of Asia. Indeed, the saga of the vulture in the Near East can be thought of as a distillation of all the cultural beliefs attached to the birds in the rest of the Old World.



For our purposes, the Near East includes Asia Minor, the Arabian peninsula, and the remainder of Asia west of the Aral Sea and south of the Don River, terminating somewhere around the present-



day eastern border of Iran. Egypt is included in this chapter as well; although it is geographically part of Africa, its culture has far too much relevance to the history of the region to be relegated elsewhere. All but one of the typical Near Eastern vultures belongs to the Eurasian vulture guild, consisting of the Egyptian Vulture, Eurasian Griffon, Monk Vulture, and Lammergeier. The sole exception is the Lappet-faced Vulture; although the species is usually thought of as a bird of Africa, it also inhabits much of Arabia and the Levant. The Lappet-faced Vultures of the Near East look more similar to the Monk Vulture than do the more colorful sub-Saharan representatives of their species, perhaps because of ancient interbreeding between the Lappet-faces and Monks.<sup>[2]</sup> And vultures that are largely endemic to sub-Saharan Africa, such as the White-headed Vulture and Rüppell's Griffon, are also seen in the Near East from time to time.

Each of these birds has contributed much to the beliefs and traditions of the region, and have had much attention lavished upon them, for an almost inconceivably long time. There is good reason to believe that many of the Near Eastern traditions regarding vultures stem from an ancient collection of religious and folkloric beliefs, which became widespread and powerful in the region during the Neolithic Period, the millennia that followed the ice ages but happened before written historical records appeared. There so many subtle similarities in the human-vulture relationships throughout the region, and so many unexpected convergences between cultures widely separated in situations and points of view, that mere coincidence cannot explain them. The influence of these vulturine beliefs is felt even today, in the religions that have risen from the Near East to gain converts around the world; one could say, with only a trace of hyperbole, that the perceptions of half of the world have been colored by this age-old cult. The cult was associated with worship of prehistoric entities that were considered manifestations of the earth, and similar veneration of the perceived feminine traits of both humanity and the world as a whole. Some scholars have claimed that this evidence proves the existence of a universal prehistoric religion surrounding a "Neolithic Great Goddess"; a theory that is now generally discredited, though there seems to be no question that Neolithic peoples venerated the feminine aspects of their world far more than would most of the later cultures of the Old World. Among these aspects were the vultures, still very widespread and numerous despite the dearth of carrion that had accompanied the end of the Pleistocene. An informal but fairly uniform collection of beliefs grew up around the birds, which will be dubbed the "Vulture Cult" from here on.

The Vulture Cult was centered in the Near East, and probably first arose there, but its influence was also felt throughout much of the rest of southern Eurasia and parts of Africa. Vultures were admired and, at times, worshipped for their association with death and for their powers of regeneration; at certain times and places, they may have been thought of as incarnations of human goddesses, and some later Near Eastern deities took the forms of vultures. Some believers of the Cult entrusted the bodies of human dead to vultures, allowing the birds to devour their flesh; such rituals may have been merely pragmatic, but it's also possible that they stemmed in part from veneration of the birds. The attentions of the Cult focused upon the larger vultures of the Near East: the Eurasian Griffon, the Monk Vulture, the Lappet-faced Vulture, and perhaps also the Lammergeier; but not the Egyptian Vulture. (In its earliest incarnations, the Cult seems to have included other scavenging birds as well, especially large eagles like the White-tailed Sea-eagle.) These vultures were admired for their size and power, just as were other very large birds; but more specifically, they were admired for their ability to dispose of the dead, and to transform dead flesh into winged life. Various body parts of the vultures, particularly their wings, were important in rituals of the Vulture Cult, and may have been used to clothe believers in order to ritually "transform" them into vultures. Finally, and possibly most



importantly, the beliefs of the Vulture Cult were intimately connected to the life-giving power of women, and the sanctity of motherhood.

The most ancient evidence of the Vulture Cult dates to long before any of the famous Near Eastern civilizations; all the way back to the Late Pleistocene, in the waning centuries of the ice age. Many Near Eastern archaeological digs have revealed collections of vulture bones dating to that time, typically associated with manmade artifacts; the most notable of these is the site of Zawi Chemi Shanidar, situated in a valley of the Elburz Mountains of northern Iraq. Consisting of the remains of a settlement dated to about 11,000 years Before Present (BP), it includes among its animal remains no fewer than 107 identifiable bird bones, found intermixed with a pile of Goat skulls. The bones include the remains of at least four individual Lammergeiers and one Eurasian Griffon. Other bones belonged to at least seven White-tailed Sea-eagles, several individuals of an unidentified small eagle, and a solitary Great Bustard; all of which are carnivorous birds, and, except for the Bustard, all of which are scavengers to some extent. The proportional numbers of each species are surprising because the asocial, solitary birds - Lammergeiers and eagles - are more numerous, although they must have been more difficult to catch in numbers than the gregarious Griffons or Bustards. Clearly, the whole enterprise of catching and dismembering the birds required a concerted effort by a large number of people.<sup>[3]</sup> This collection is not the remnant of a kitchen refuse heap, or some bone pile upon which random birds were thrown, because there are no torso bones to be found; 90% of the bones are from the wings of the birds, the remainder comprising leg bones and neck vertebrae. Some of the wing bones are still articulated, indicating that when they were discarded, the wings were still whole; and cut marks on the bones suggest that the wings of the birds were carefully and deliberately cut away from their bodies. The wing bones may have been skinned, but there is no evidence that they were used as food.

The most obvious implication to be drawn from these findings is that the people of Zawi Chemi Shanidar methodically killed these birds, with the intention of using their wings for some sort of ritual. Since the wing remains are comprised mainly of the "hands" (the outer portions of the wings, which included the birds' finger-like primary feathers), perhaps the intact wings were used as ceremonial fans. Or, in view of the evidence that the wing bones had been skinned, perhaps the skin and attached feathers were used as costumes in religious ceremonies;<sup>[4]</sup> similar traditions have been documented for the people of the Americas, who sometimes used the skins of their largest vultures to clothe ceremonial dancers. The latter explanation might account not only for the associated goat skulls, which could serve as the headpieces of such costumes,<sup>[5]</sup> but also for the surprising absence of the Egyptian Vulture from the bone deposits. Although the confiding Egyptian Vultures must have attended the human settlement for its enticing garbage and vermin, and therefore must have been much easier to catch than the wilder Lammergeiers and Griffons, the relatively small size of the Egyptians means that their wings aren't long enough to cover the arms of an average-sized human. With the possible exception of the small eagles, all of the birds found at Zawi Chemi had wingspreads of seven feet (2.2 m) or more; their whole wings could cover an adult's arms with room to spare.

Although the vulturine boneyard at Zawi Chemi is the largest known assemblage of its kind, it is far from the only one. The Ksar'Akil site in Lebanon, dating to at least 15,000 BP, boasts a collection of 35 vulture bones, mostly of wings and legs. Even more ancient is the accumulation in Kebara Cave on Mt. Carmel in Israel, which includes a metacarpus of a Monk Vulture and a humerus fragment of a Eurasian Griffon (both wing bones) in its ossuary. And Hayonim Cave in Galilee, dating to roughly the same time as Zawi Chemi, contains an array of bones from Eurasian Griffons, eagles, kites, falcons, and buzzards;<sup>[6]</sup> again, all of the birds are carnivorous, and most are scavengers to some

extent. Recent archaeological digs in southeastern Turkey and northern Syria have discovered a number of Neolithic sites dating from the 12,000 to 6,000 BP, most if not all of which contain both limestone sculptures of vultures and the bones of Eurasian Griffons and Monk Vultures. The vast majority of these bones are from the wings and feet of the birds, and it's thought that the vultures were killed for use of their feathers, or perhaps their entire wings.<sup>[7]</sup> None of these findings jibe with the theory that these late-Stone Age people only hunted birds for food; not only are vultures and other birds of prey unpalatable compared to typical game birds, they are also far rarer and usually more difficult to catch. The carrion birds meant something to these people, something beyond their longtime role as locators of food for humans, and beyond even a purely aesthetic admiration. The vultures were caught, and their bodies dismembered and ritually used, because they had a special significance to the people of the Near East; because a cult was forming around them.

There is ample room for speculation regarding the meaning of this special significance of the birds at these ancient sites, but far more detailed evidence of the relationship between Near Easterners and vultures can be found at a later archaeological site. This site (along with the surrounding area) once was the locus of an ancient Near Eastern cultural network, whose influence stretched from Morocco in northwestern Africa to the steppes of eastern Persia. From the end of the Pleistocene, around 8,000 years Before the Common Era (BCE), identifiable similarities in the art and artifacts of this entire region can be found; it seems that people were traveling throughout the area, spreading their ideas and beliefs far and wide. No contemporaneous cultural network from elsewhere in the world even approaches the breadth of this one; it even had a power center, a settlement that was as important in its heyday as Rome was in the first century, or New York in the twentieth. This was Çatal Höyük, the town of the Bull and the Vulture.

Çatal Höyük was discovered in 1958 by the archaeologists James Mellaart, Alan Hall, and David French. The site lies at about 3,000 feet (940 m) above sea level on the Anatolian plain in southern Turkey. Its time of occupation was originally dated using the radiocarbon process to 6,250-5,400 BCE, but more recent tree-ring dating suggests that it may be a full millennium older than that.<sup>[8]</sup> Either way, it is unquestionably the oldest town known to archaeology. Even by modern standards, it would be considered a town, rather than a hamlet or village; in its heyday, Çatal Höyük contained some 1,000 houses, and was home to a population of between five and six thousand people.<sup>[9]</sup> The "Çatalians" (if I may coin a grammatically incorrect term) were a multiethnic bunch, comprising at least three different groups with distinct differences in skeletal structure. Their civilization was remarkably advanced for its day; in addition to feeding themselves through the old standbys of hunting and gathering, the Çatalians cultivated some 14 different food crops. They were generally longer lived than other Stone Age people; some of the remains found in the town are of individuals more than sixty years old, an astounding lifespan for such ancient men and women. The presence of such venerable individuals, who could act as mentors by passing on their vast experience and knowledge, helps to explain the richness of the religious life of the Çatalians.<sup>[10]</sup> Like that of all other pre-industrial peoples, the existence of the Çatalians was closely tied to both wild and domestic animals, and they appropriately elevated animals to a place of prominence in their beliefs.



Çatal Höyük is rife with animal imagery: plaster relief sculptures of bulls and rams, stone carvings of Leopards and stags, and wall paintings of Dogs and vultures. In three shrines found in levels VII and VIII of the town (these levels are dated to periods of 6,200-6,070 BCE and 6,500-6,280 BCE, respectively) there are huge wall paintings, which show hook-billed birds apparently attacking the headless bodies of humans ([left](#)). The birds in the paintings are highly stylized; but, unlike most very ancient bird paintings, they are not so generic that the identity of their subjects can't be pinpointed. The long and extremely broad wings, powerful hooked bills, and prominent ruffs protruding from the backs of the necks all leave no doubt that these painted birds are vultures. James Mellaart thought that they were intended to represent Eurasian Griffons, but the high neck ruffs of most of the vultures are more indicative of Monk Vultures (and the paintings may have been composite images of both large species). These paintings indisputably rank among the most spectacular works of vulturine art ever produced.

In later paintings, the bodies of the vultures are not simply filled in with pigment; they contain negative spaces, within which are patterns of lines that echo the wings and tails of the birds. This may have been an attempt by the Çatalians to indicate the internal structure of the birds,<sup>[11]</sup> analogous to the famous "X-ray style" often employed by ice age artists when painting large mammals; or, considering the supernatural power with which the Çatalians imbued the birds, perhaps the brushlike appearance of the lines was intended to denote their power in "brushing" away mortal life.<sup>[12]</sup> The largest of the vulture paintings have wingspreads of five feet (1.6 m) - which, with their half-folded wings, makes them roughly life-size. In the words of Mellaart, "It is not difficult to imagine the awe and terror which the wall-paintings . . . must have inspired in Neolithic man." The paintings surely weren't intended merely to frighten the denizens of Çatal Höyük, like some prehistoric analogue of a haunted house - but then, what were they for?

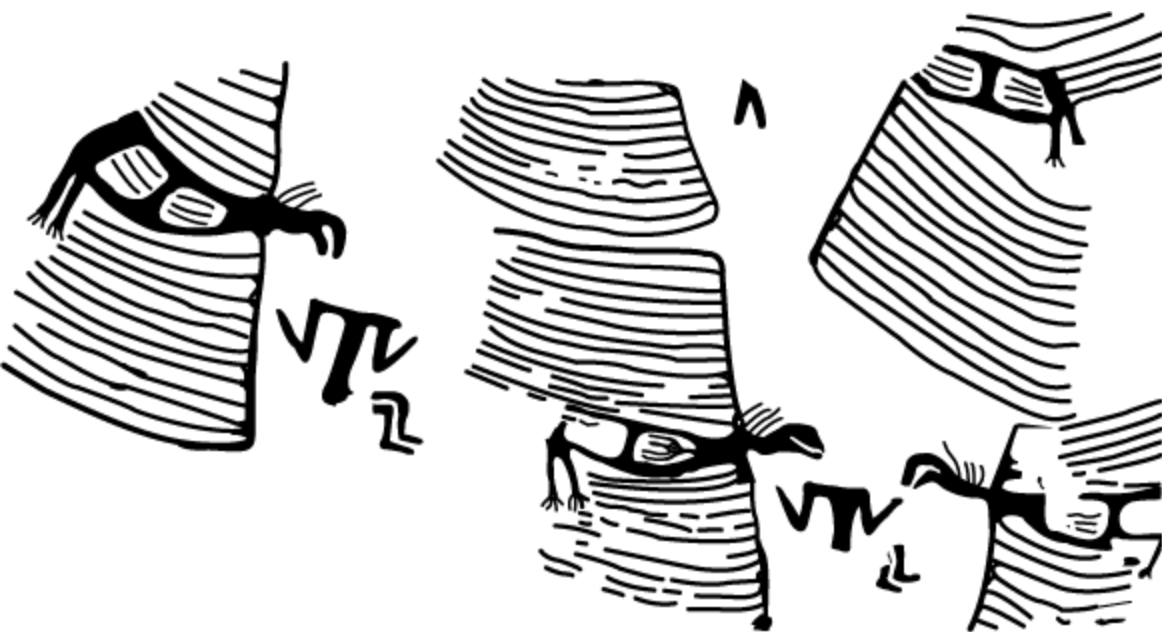
The earliest of the paintings ([below](#)), found in a level VIII room dubbed "Shrine VIII.8," shows a human figure holding what appears to be a sling in one hand and a mace or stick in the other, standing above a headless body; the two figures are sandwiched between two much larger vultures which are swooping towards them, with half-folded wings and their legs thrust forward.



A shrine on the later level VII holds a painting where the vultures are noticeably different from the other paintings. These two birds in shrine VII.21 don't have the true-to-life legs of the other vultures; in fact, their legs look markedly human, as if the paintings are intended to represent half-human/half-vulture creatures. These may actually be

paintings of Çatalian dressed in ritualistic vulture garments, perhaps including entire wings of the birds (like those found at Zawi Chemi Shanidar); but the human-legged vultures could also have been meant to depict a divine personage, a human/vulture deity.<sup>[13]</sup>

Most famously, shrine VII.8 (dubbed the “Vulture Shrine” by researchers) contains the arresting image of an enormous vulture apparently feeding on two much smaller headless human figures. The northern wall of the same shrine was graced with a similarly styled painting ([below](#)) of at least five vultures among several headless figures. The scenes depicted by the Vulture Shrine paintings can be



interpreted fairly easily: they are probably depictions of the practice of exposing the dead to be consumed by vultures. This ritual is known by many names - *sky burial*, *excarnation*, *ingestion*, and my personal favorite, *sub-aerial deposit* - but for the moment, we will simply call it *exposure*. Exposure as a funeral practice has long since died out in Anatolia,

though it has survived in a few other Asian cultures to the present day; in fact, the vulture paintings of Çatal Höyük bear some resemblance to the paintings still made by Tibetan monks to commemorate their own exposure rituals. Archaeological digs in southeastern Turkey and northern Syria have discovered even earlier pictorial depictions of vultures in association with heads and/headless bodies,<sup>[14]</sup> indicating that Çatal Höyük was by no means unique in this interpretation of the Vulture Cult.

Mellaart believed that the people of Çatal Höyük exposed the bodies of their dead on outdoor platforms, with the intention that their flesh - but not their skeletons - would be devoured by scavengers. The bones would then be gathered and either buried or used in further rituals. If the Çatalians had merely exposed their dead on the ground, mammalian scavengers like jackals and hyenas would have made off with the bones, and it was apparently very important that the bones remain intact; hence the need for platforms, built high off the ground to discourage any non-avian scavengers from taking part in the rituals. Southern Turkey doubtless had a thriving population of Eurasian Griffons and Monk Vultures during the town's heyday, and the vultures must have been very efficient at stripping the bodies of flesh. Griffons don't ordinarily crush or carry off bones, as mammalian scavengers do; when consuming a carcass the size of an adult human, the vultures leave the skeleton largely untouched. A few broken or removed ribs and occasional scratches and gouges to the extremities of the softer bones are normally the full extent of the damage, with even the ligaments connecting the bones remaining still more-or-less intact during the first couple days of feeding.<sup>[15]</sup> However, it's interesting to speculate upon the distress that a stray Lammergeier might have caused the Çatalians, should it take an interest in one of their skeletons. Further evidence of exposure can be found in the treatment of dead infants at Çatal Höyük; since their bones were so



small, soft, and unfused, the vultures would likely inadvertently swallow or damage them,<sup>[16]</sup> and so their flesh was removed by other means. The practice of exposure would seem very strange in most of the world nowadays; but as we'll see in this and [the succeeding chapter](#), it was actually fairly common in the Old World for most of recorded history, not much less so than burial or cremation.

Some of the archaeologists who've studied Çatal Höyük in Mellaart's wake have disputed his conclusion that the town's inhabitants practiced exposure as a rule, because the human skeletons at the site were found largely intact, and the doubters seem to believe that consumption of their flesh by vultures would inevitably have badly disarticulated the skeletons.<sup>[17]</sup> While vultures will eventually disarticulate the skeletons of the carcasses that they feed from if given enough time,<sup>[18]</sup> considering the predictable pattern in which the birds eat, it would have been a simple matter for the Çatalians to interrupt the birds in their feeding and reclaim the skeletons after the flesh had been stripped, but before the vultures began to tear at the connective tissue. Rather stronger evidence against exposure is found in the signs of advanced tissue decay on some of the skeletons, meaning that the bodies were likely left to decompose for long periods of time, which probably wouldn't have happened in a regime of exposure.<sup>[19]</sup> The issue of exposure in Çatal Höyük remains open; though in my opinion, the evidence for exposure outweighs the evidence against it (and we'll see [in Chapter 10](#) that not everyone who accepts that the Çatalians practiced exposure believes that that they did so for peaceful purposes).

That argument aside, the details of the Çatalians' practices are open to debate; in particular, the painting in Shrine VIII.8, of the sling-wielding figure between two vultures, has prompted much debate about its true significance. The figure holding the sling and stick looks for all the world as though it is protecting the headless body over which it stands, by fighting off the two vultures with its weapons. But why would a Çatalian attempt to drive away vultures that were only doing what they were expected to do? One possibility is that the painting depicts the end of an exposure session; the slinger may be driving the birds from a skeleton that has already been stripped of flesh, in order that it may be taken away and disposed of. Another interpretation is that the sling wasn't really a weapon; perhaps the figure was using the sling to "call" the vultures, by twirling it rapidly so that its humming was audible for a long distance. A similar procedure of calling vultures with an instrument is sometimes used during the modern exposure rituals practiced by Tibetan Buddhists. Yet another idea is that since the people of Çatal Höyük clearly had some familiarity with internal human anatomy, they may have sometimes chased vultures away before they finished their meal in order to inspect the inner workings of the body.<sup>[20]</sup> The existence of ritually used vulture remains elsewhere in the town, such as Griffon skulls placed in the nipples of sculpted human breasts, coupled with the strong implication that the Çatalian priests required vulture parts to use in their ceremonial costumes, raises another possibility: perhaps the Çatalians exposed their dead to the birds not only for the purpose of removing the flesh, but also in order to deliberately attract vultures, which could then be killed and dismembered for ritual use. It could be that the painting of the figure with the sling between two vultures represents neither someone attempting to ward off the birds, nor someone "calling" them to a feast, but rather someone attempting to kill the birds with slung rocks.

At first glance, one of the more puzzling characteristics of Çatal Höyük is the interplay of vultures with the similarly common bulls in its artwork. It was originally thought that this dichotomy was merely intended by the Çatalians to symbolize female and male attributes, as the vulture was thought of as a feminine symbol in the ancient Near East, and the well-endowed bull is still a traditional masculine symbol in many cultures. But it has since become clear that to the Çatalians, the bull was also a feminine symbol; more precisely, an aspect of the divine powers that aided and ensured rebirth. This was a marked departure from the more common view of the bull as a hyper-

masculine figure; but then, the Çatalians' focused their views upon the heads of the bulls, instead of their genitalia. From directly ahead, the skull of a bull looks remarkably like the reproductive organs of a woman, with the cranium approximating the uterus, the nasal passages reminiscent of the birth canal, and the horns closely resembling (in both shape and placement) the fallopian tubes. And so the prospect of rebirth and new life is symbolized in the shrines by bull's heads, often marked with wavering lines that symbolize water.<sup>[21]</sup> The half-human/half-vulture painting in shrine VII.21 is directly adjacent to a fresco with a bull's head; and below the bull's head is buried a human skull, the first thing that could be seen emerging from a mother's body as she gave birth. All of this suggests that, to the Çatalians, vultures were not only destroyers of the dead; they were also regenerators of the living.<sup>[22]</sup>

Çatal Höyük was abandoned, for unknown reasons, in the mid-sixth millennium BCE; but the Vulture Cult lived on. The period between the demise of the great town on the Anatolian plain and the rise of the Near Eastern civilizations of the Nile and the Fertile Crescent is one of the least-known and most poorly preserved epochs in human history; it predates written language, and archaeological evidence dating from this period is scarce. Yet there are still scattered hints of the Cult to be found, such as bones of those faithful servants of rebirth, the Griffons, found in association with human artifacts in the Kerman area of Iran that date to the mid-fifth millennium BCE.<sup>[23]</sup> We can be certain that the Vulture Cult remained strong; if only because it manifested itself so spectacularly in Egypt. Ancient Egypt was neither the first nor the last culture to have worshipped vultures, or to have given vulturine traits to some of their deities. But the Egyptian vulture deities were very conspicuous in art and literature, and due to the continued popularity of Egyptology, they are undeniably the best known of their kind. Still, it isn't widely known that in a society seemingly obsessed with death and the fate of the dead, vultures attained their greatest power as protectors and givers of life. The most prominent of the Egyptian vulture deities was Nekhbet, one of ancient Egypt's Two Ladies.

Nekhbet's birth can be traced back to pre-dynastic times, long before Egypt was united under one ruler. In those fragmented centuries, Egypt was divided into "Upper" (southern) and "Lower" (northern) regions,<sup>[24]</sup> each with their own distinct cultures and religious beliefs. The most exalted animals in Lower Egypt were snakes; cobras, to be precise. In Upper Egypt, vultures, especially [Eurasian Griffons](#), were the primary objects of idolization. The principal sanctuary of this particular flowering of the Vulture Cult was located in a very old settlement, dating to at least 6400 BCE, known to the Egyptians as Nekheb (which still exists today, under the name of El-Kab). The vulture goddess was worshipped there as the supreme being, the Great Mother of all life.<sup>[25]</sup> Her shrine, the *Per-wer* ("House of Greatness"), was simply a light wooden frame covered with animal skins.<sup>[26]</sup> Nekheb and its coterie of loyal worshippers had the good fortune to be located just across the Nile from the city of Nekhen, where the ruling house that would ultimately come to dominate Upper Egypt was located. When the rulers of Upper Egypt went on to conquer Lower Egypt and establish the pharaonic dynasty, the vulture goddess of Nekheb became the tutelary goddess of the pharaoh and, in conjunction with Wadjet, the cobra goddess of Lower Egypt, comprised the Two Ladies, the symbol of Egyptian royalty.<sup>[27]</sup> In order to announce the pharaohs in the Egyptian hieroglyphic writing system, the images of the vulture and the cobra were combined to make a title that can be translated as "Lord of the Shrines of the Vulture and Cobra"; that is, lord of both Upper and Lower Egypt.<sup>[28]</sup>

From her earliest appearance as one of the Two Ladies, the vulture goddess was named after the town where her worshippers had congregated for centuries, and so was known as Nekhbet. Nekhbet came to be one of the most important and powerful deities in the Egyptian pantheon; among her many titles (and roles) were Mother Goddess, Creator of the World, Nurse of the Pharaoh, and

Protector of Childbirth. In her earliest appearances in Egyptian art, she was depicted as a flying Griffon, hovering protectively over the pharaoh.<sup>[29]</sup> Later, she was portrayed as a queenly woman wearing a vulture crown, and also as a woman with a vulture's head.<sup>[30]</sup> Her characterization as the pharaoh's mother was apparently interpreted quite literally; one royal funerary temple from the Fifth Dynasty (c. 2600 BCE) depicts Nekhbet in human form, nursing the pharaoh Sahure at her breast.<sup>[31]</sup> In metaphysical terms, Nekhbet was to the Egyptians a form of the primeval abyss that had given birth to all life, which is why she was sometimes called "the father of fathers, the mother of mothers."<sup>[32]</sup> The Egyptians saw no contradiction in bestowing the duties of nursing and motherhood upon a vulturine goddess; for aside from the obvious (to them) association between death and rebirth, vultures, or at least Eurasian Griffons, were apparently believed to be entirely female.

One of the last known priests of the pharaonic religion was the writer Horapollo, who lived in the fifth century CE and compiled many of the beliefs that were then still held by the few remaining believers in the native Egyptian faith. He wrote that the Egyptians believed when a vulture wished to conceive, "she opens her sexual organ to the North Wind and is covered by him for five days," during which she neither ate nor drank.<sup>[33]</sup> The bird would then gestate its young for a third of the year, and feed its young for another third. According to Horapollo, when a vulture was "at a loss to find food to prepare for its young, it cuts open its own thighs and allows its young to drink its blood, so that it may not lack food to give them."<sup>[34]</sup> During the remaining third of the year, the vulture would take care of itself, "not in pregnancy nor in eating, but in preparing itself for another conception." Maternal sacrifice, indeed. Horapollo further noted that, to the Egyptians of his time, the vulture symbolized the Greek goddesses Athene and Hera, "since it seems to the Egyptians that Athene rules over the upper hemisphere of heaven and Hera over the lower. Wherefore they hold it absurd that the heavens be male; female are the heavens." And thus the vulture hieroglyph, a feminine symbol, was used to signify the sky, since the Egyptians had placed their genesis, their "birth," in heaven and so disliked the attribution of any masculine traits to the sky.<sup>[35]</sup> This was quite a departure from the beliefs of the Romans, who ruled Egypt during Horapollo's time and who thought of the heavens as very masculine. It is sadly unrecorded what the Romans thought of their subjects using a feminine vulture symbol to signify Father Sky.

The Egyptian hieroglyph of the large vulture (as distinct from Egyptian Vulture) used to signify the heavens was read as *mt*, and This double meaning coincided with Nekhbet's role in the the protector of her "child," the pharaoh. During his youth, spend time at the royal palace, suckling him along children; and when he was

that of the small also meant "mother." Egyptian pantheon, as she was believed to with the other royal grown, she hovered over his head in battles - not to foretell his death, but to guard him from harm.<sup>[36]</sup> Nekhbet's original

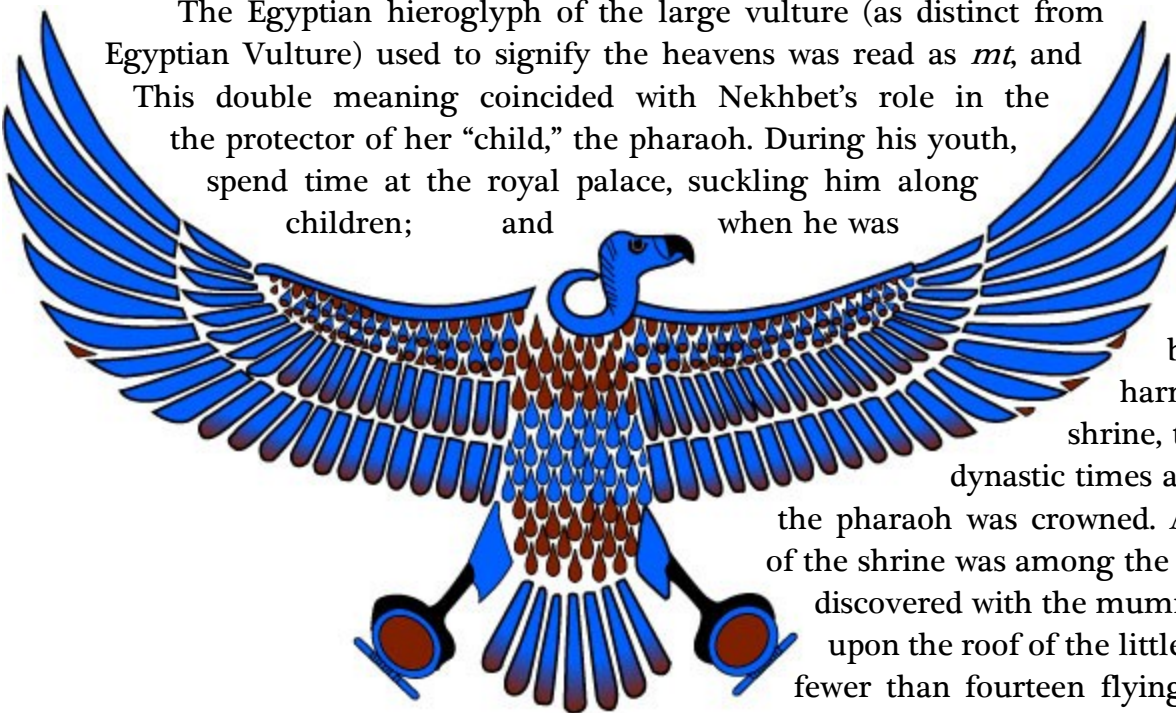
shrine, the Per-wer, survived into

dynastic times as the holy place in which

the pharaoh was crowned. A miniature golden copy

discovered with the mummy of Tutankhamun, and

upon the roof of the little Per-wer are engraved no fewer than fourteen flying vultures, each of them





holding the hieroglyphic symbol for infinity in its talons.<sup>[37]</sup> It's difficult to imagine a more unambiguous symbol of the timelessness of Egyptian royalty.

Although Nekhbet was always a very womanly figure, symbolic usage of her by the feminine royalty of Egypt was unknown before the late Fourth Dynasty (about 2500 BCE). At that time, the chief queen of Egypt began to wear the distinctive vulture crown ([below](#)), specially crafted to resemble a Griffon. The bird's body formed the skullcap of the crown, and the wings swept back gracefully to settle on the queen's ears. The crown was often topped with two feathered plumes (which were plucked from birds rather more colorful than vultures), as well as a sun disk.<sup>[38]</sup> This conspicuous bearing of Nekhbet's symbolic bird by the queen may have been intended to mean that the queen was united with the goddess; that she was a goddess herself. The vulture crown remained an important piece of queenly attire for a very long time, at least as late as Egypt's Ptolemaic period in the late 4th century BCE,<sup>[39]</sup> which strongly suggests that Nekhbet herself was still honored at that time. Although she was a preeminent goddess of the Egyptian rulers, Nekhbet evidently still had a place in the hearts of the common people of Egypt, who frequently appealed to her for protection, and for promises of fertility.<sup>[40]</sup>



It isn't known for certain whether living vultures were incorporated into the ceremonies honoring Nekhbet. A number of mummified vultures have been discovered in Egyptian archaeological digs, including some of the Eurasian Griffons whose image served as the embodiment of Nekhbet; but some of the small Egyptian Vultures were also mummified, and that species seems to have had little if any religious significance to the ancient Egyptians. Nevertheless, there are intriguing hints that living vultures were used in the ceremonies honoring Nekhbet. The tomb of a Twentieth Dynasty (early 12th century BCE) high priest of the vulture goddess holds a remarkable painted scene in which the shrine of Nekhbet is carried up the Nile by boat, in order to attend a festival honoring the current pharaoh. The prow of the boat bears two animal heads, of antelope or oryx, as well as a vulture painted in the customary vivid and unrealistic colors. But, unusually, the vulture has a red band around its wings; this possibly represents a restraint placed upon a living bird, in order to keep it from flying away before it arrived at the festivities.<sup>[41]</sup>

Another Egyptian goddess, known as Mut, also began as a local deity and later came to command more widespread worship. Her sanctuary was located near the lake at Karnak, and was in continuous use for more than 2,000 years. According to some interpretations, she was a hermaphrodite, with the sexual organs of both a man and a woman; although she was always visualized, like Nekhbet, as a woman. Opinions among Egyptologists have long differed as to whether or not Mut was a genuine vulture goddess in the same sense that Nekhbet was; there is now general agreement that she wasn't.<sup>[42]</sup> The confusion over her vulturine qualities stems largely from her name, which was written and pronounced identically to the Egyptian word *mwt/mt*. As already mentioned, this word was represented in hieroglyphs by the ideogram of the Griffon, and that ideogram was used, on its own, to write the word "mother." While the spoken name of this goddess sounded like "vulture," and her written name *looked* like a vulture, she herself wasn't a vulture. Be that as it may, Mut was



typically depicted as a woman wearing a vulture crown, which was only appropriate for royalty. She may even have occasionally been painted with a vulture's head.<sup>[43]</sup> Her role in Egyptian belief seems to have been a protector, rather than a creator; she was the “maker of sound bodies,”<sup>[44]</sup> who defended Egypt and its people beneath her outstretched winged arms. The British writer Villiers Stuart offered an elegant explanation regarding the symbology of this maternal vulture, though opinions may vary as to his ontological accuracy:

[The Egyptians] selected the vulture as her emblem because, owing to the enormous spread of wing, it was well qualified to convey the idea of the overshadowing vault of Heaven, spread out and expanded over all creation. The transition to the idea of a protector is obvious, and when the vulture is represented poised over the king in battle, it merely means that Mut is spreading over him the aegis of her protection. . . . Let it be understood, then, that the idea conveyed by the vulture is overshadowing, and thence protecting; and they extended to the human mother the same sign that stood for the universal divine mother - the vulture.<sup>[45]</sup>

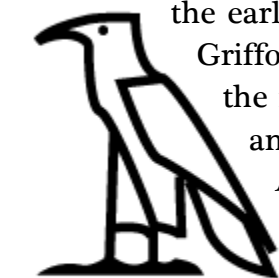
Aside from Nekhbet and Mut, vultures were seen in the bodies or regalia of several other deities, often combined with other animals. When Buto, the cobra protector of Lower Egypt, took human shape, she did so in the form of a woman wearing a vulture headdress and crown.<sup>[46]</sup> Several other goddesses (but apparently no male gods) were either considered “vulture goddesses” or were associated in some way with the birds. Among the former was Nephthys, the personification of darkness, in whom the vulturine link with death was much more apparent than in the other goddesses. Nephthys was known as the Mistress of the West (where the souls of the dead went), Protector of the Dead, and the Lunar Goddess, but she was most famous as the sister of Isis, and the wife of the man who killed the cultural hero Osiris.<sup>[47]</sup> Neith, originally a war goddess, was never thought of as vulturine but was still linked with the birds. She led every charge of the Egyptian armies in her earlier years; but she later mellowed out and became more of a creator, and less of a destroyer.<sup>[48]</sup> And one of the stellar constellations recognized by the ancient Egyptians was that of *Kenmut*, the vulture.<sup>[49]</sup>

The Egyptians incorporated two different vulturine ideograms into their hieroglyphic writing system. *Mwt/mt* (also possessing the phonetic value of *nr*, which we'll return to later), with its humped back, long neck, and heavy hooked bill, was clearly patterned after the Eurasian Griffon, although the visual influence of the Lappet-faced Vulture was also apparent at times.<sup>[50]</sup> The other, which possessed the phonetic value 3 (equivalent to a glottal stop in English), was more angular in shape, with a wedge-shaped head and long, thin bill.<sup>[51]</sup> It came into wide use during the Third Dynasty (c. 2660 BCE),<sup>[52]</sup> and was based upon the [Egyptian Vulture](#). Ironically, the Egyptian Vulture seems to have had little religious or mythological significance to the ancient Egyptians, at least when compared to its larger cousins. Depictions of it are exceedingly rare in paintings (hieroglyphics are considered writing, so they don't count), and the small Egyptian was certainly never worshipped in the guise of a goddess,

as the larger vultures were. Apparently even the written word *vulture* was too exalted for it; although the Egyptian Vulture ideogram, read as 3, meant “vulture” at the time of the early Pyramid Texts, it was later replaced by the ideogram of the Griffon.<sup>[53]</sup> Egyptian Vultures were sometimes mummified, although the reasons why are obscure, and in life the birds were a common and conspicuous presence around the towns of the Egyptians. Aside from their undoubted sanitary value in disposing of carcasses, garbage, and excrement, Egyptian Vultures also



Large vulture ideogram  
(patterned after  
Eurasian Griffon and  
Lappet-faced Vulture)  
Phonetic values: *mwt*, *mt*, *nr*



Small vulture ideogram  
(patterned after  
Egyptian Vulture)  
Phonetic value: 3

killed small animals like rodents and locusts. Such pests are the bane of agricultural civilizations, particularly those that are as dependent on grain as were the ancient Egyptians. The birds' presence was so highly valued that they were seldom persecuted or harassed in any way; and so the Egyptian view of the Egyptian Vulture was of a useful creature that was too small in size, confiding in humanity, and disgusting in its habits to be deified. This precedent would be followed for many centuries.

Even after the abandonment of the hieroglyphic writing system, vultures continued to be held in high regard by the people of Egypt. Many early travelers to Egypt mentioned the huge flocks of Egyptian Vultures that were seen around most every town and village.<sup>[54]</sup> An 18<sup>th</sup>-century Englishman named Shaw recorded that the vultures of Cairo were so beloved by the city's people that the ruling Pasha of Egypt had two oxen killed every day in order to feed the birds.<sup>[55]</sup> A young Swedish naturalist named Frederick Hasselquist journeyed to the Holy Land and adjacent areas in the 1740s, and posthumously published a book in which he described the animals that he saw there. Conspicuous among the birds was the Egyptian Vulture, which, although he thought its appearance "as horrid as can well be imagined," he praised by saying:

[T]he inhabitants of Egypt cannot be enough thankful to Providence for this bird. All places around Cairo are filled with the dead bodies of asses and camels; and thousands of these birds fly about and devour the carcasses before they putrify and fill the air with noxious exhalations.<sup>[56]</sup>

In the late 19th century, Crown Prince Rudolf of the Austro-Hungarian Empire visited Egypt, where he noted that "within and without the towns this Vulture is very audacious, but can perfectly distinguish the Europeans, who murder everything [hunt indiscriminately], from the Arabs, who protect it because it cleans the neighbourhood from carrion and dirt."<sup>[57]</sup> During his journeys in the Holy Land at the same time, the English missionary H. B. Tristram found the Egyptian Vulture

the most universally diffused of all the Raptores of Palestine during summer, it being impossible in any part of the country to travel a mile or two without putting up a pair. It has no dislike to the neighbourhood of man, and fearlessly resorts to the dunghills of the villages to feed. No filth, vegetable or animal, seems to come amiss to it; and I once surprised a pair in the act of gorging at a heap of spoiled figs.<sup>[58]</sup>

Such conspicuous abundance helps to explain why this species is known in English as the Egyptian Vulture, and in French as the *Percnoptère d'Egypte*. At first glance, neither geography nor timing appears to favor such names; after all, the bird was familiar to speakers of both tongues in Europe, and to European colonists in India, long before it was familiar from Egypt. Although *Egyptian Vulture* was recorded as a name for the species as early as 1760,<sup>[59]</sup> the more usual colloquial terms in English were *Alpine Vulture*, *Bastard Eagle* (a name that really should be resurrected for some other bird), or *(White) Scavenger Vulture*. Sometime in the first quarter of the 19th century, *Egyptian Vulture* was resurrected to become the preferred name - along with *Pharaoh's Hen/Chicken*, although that is little used nowadays.<sup>[60]</sup> Perhaps not coincidentally, this was soon after Napoleon Bonaparte's conquest of Egypt, in 1798, and the expulsion of his army by the British, in 1801. Following these military expeditions, several highly popular books detailing the ancient wonders that the French had discovered in Egypt were published and translated into English. Neither the explorers nor the readers of these books could fail to notice that the still-mysterious Egyptian hieroglyphs included a stylized picture of the small white vulture, nor that these vultures were still common throughout Egypt. Although the meanings of the hieroglyphs weren't actually deciphered until 1822,

the prevalence of the vulture in the country that hosted the most exciting and romantic archaeological trend of the time seems to have urged a change of name for the bird; a more dignified alternative to the pantheon of informal, crude handles that at last allowed the long-marginalized species to obtain some slight popular cachet in Europe. The pharaonic names (which are noticeably absent in other European languages) have stuck since then, even as Egyptology fades in and out of the public consciousness and even as the Egyptian Vulture became increasingly rare in Egypt itself. These vultures still populated Cairo in the thousands as late as the 1870s, but declined to small numbers by the 1930s. Though they still breed in Egypt, they are uncommon in their namesake nation today.<sup>[61]</sup>

Although the cultural manifestations of vultures in ancient Egypt are certainly the most prominent and best-studied, contemporary societies in the Bronze Age Near East had their own, often drastically different visions of the birds. Archaeological excavations in and around Ras Shamra, Syria, have discovered a number of clay cuneiform tablets dating from the fourteenth century BCE, contemporaneous with the New Kingdom in Egypt. Many of the tablets were written in Akkadian, a now-extinct Semitic language that served as a lingua franca throughout the Near East at the time, and contain religious records: prayers, hymns, lists of deities, and so forth. There are also three legends of the local Ugaritic people recorded in the tablets; one of which, the *Tale of Aqhat*, contains a remarkable sequence providing details about how the people of the time reacted to and interacted with vultures.

The eponymous character of the tale, Aqhat, is the son of a pious man named Dani'il, and was provided to Dani'il and his wife by the chief god Ba'l. Upon reaching adulthood, Aqhat is given an exquisitely crafted bow and arrows by his father. This fine weapon is coveted by the goddess Anat, but Aqhat refuses to give it to her. As a result, she decides to kill him at a ceremonial feast and take it for herself. With the aid of Yatupan, a servant, she flies among a group of vultures (perhaps by appearing as a vulture herself), taking advantage of the usual presence of the birds at such feasts to remain inconspicuous:

When Aqhat sits down to eat,  
the son of Dani'il to dine,  
Vultures will hover over him,  
a group of kites will watch.  
I myself will hover among the vultures

While hovering overhead, Anat casts Yatupan down at Aqhat's head, where the servant strikes him multiple times, finally killing him.<sup>[62]</sup>

This heinous act causes a drought to spread over the region; and so, when Dani'il and his daughter Pughat see vultures flying over their house, they initially believe that the birds are merely there to consume livestock killed by the drought. But as it turns out, they forebode something worse; soon afterwards, messengers arrive to inform Dani'il of Aqhat's death.<sup>[63]</sup> After a brief moment of intense grief, Dani'il immediately turns to the task of recovering his son's remains from their most likely resting place:

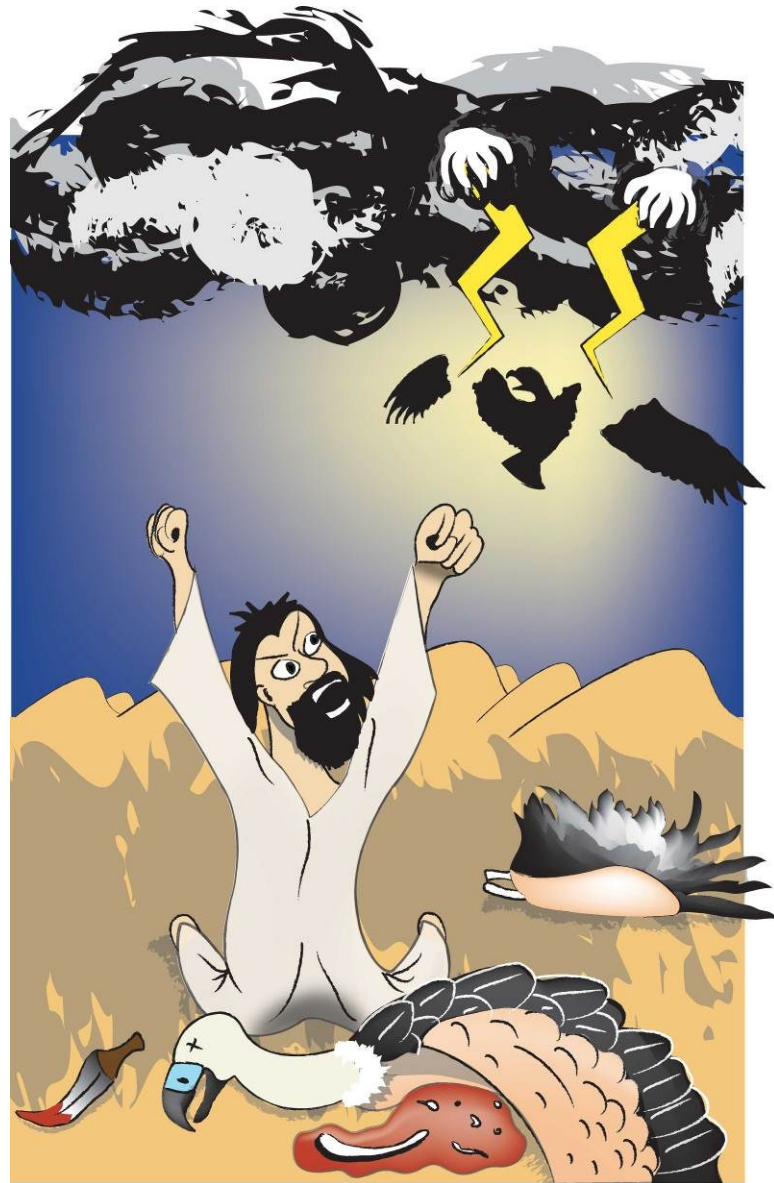
As he lifted his eyes, he saw,  
he observed vultures in the clouds.  
He raised his voice and cried,  
"May Ba'l break the vultures' wings,  
may Ba'l break their pinions!  
May they fall at my feet,

so I can cleave their viscera and observe!  
 If there is fat, if there is bone,  
 I will weep and bury him,  
 I will place him in a cavern of the underground gods."  
 The utterance had barely left his mouth,  
 his word from his lips,  
 when Ba'l broke the vultures' wings,  
 Ba'l broke their pinions.  
 They fell at his feet. He cleaved their viscera and  
 observed:  
 there was no fat, there was no bone.  
 He raised his voice and cried,  
 "May Ba'l mend the vultures' wings,  
 may Ba'l mend their pinions!"  
 He sewed up the vultures, and they flew off.

This sequence of events is repeated with Hargab, the father of the vultures; then Dani'il turns to Samal, the mother of the vultures.<sup>[64]</sup> But when Ba'l brought down the latter bird at Dani'il's request:

He cleaved her viscera and observed:  
 there was fat, there was bone!  
 He took Aqhat from her,  
 he wept, yes, gathered,  
 he wept and buried.  
 He buried him in a tomb. . . .  
 He raised his voice and cried,  
 "May Ba'l break the wings of the vultures,  
 may Ba'l break their pinions,  
 if they fly over my son's grave, and disturb him in his sleep."<sup>[65]</sup>

[Translated by David P. Wright]

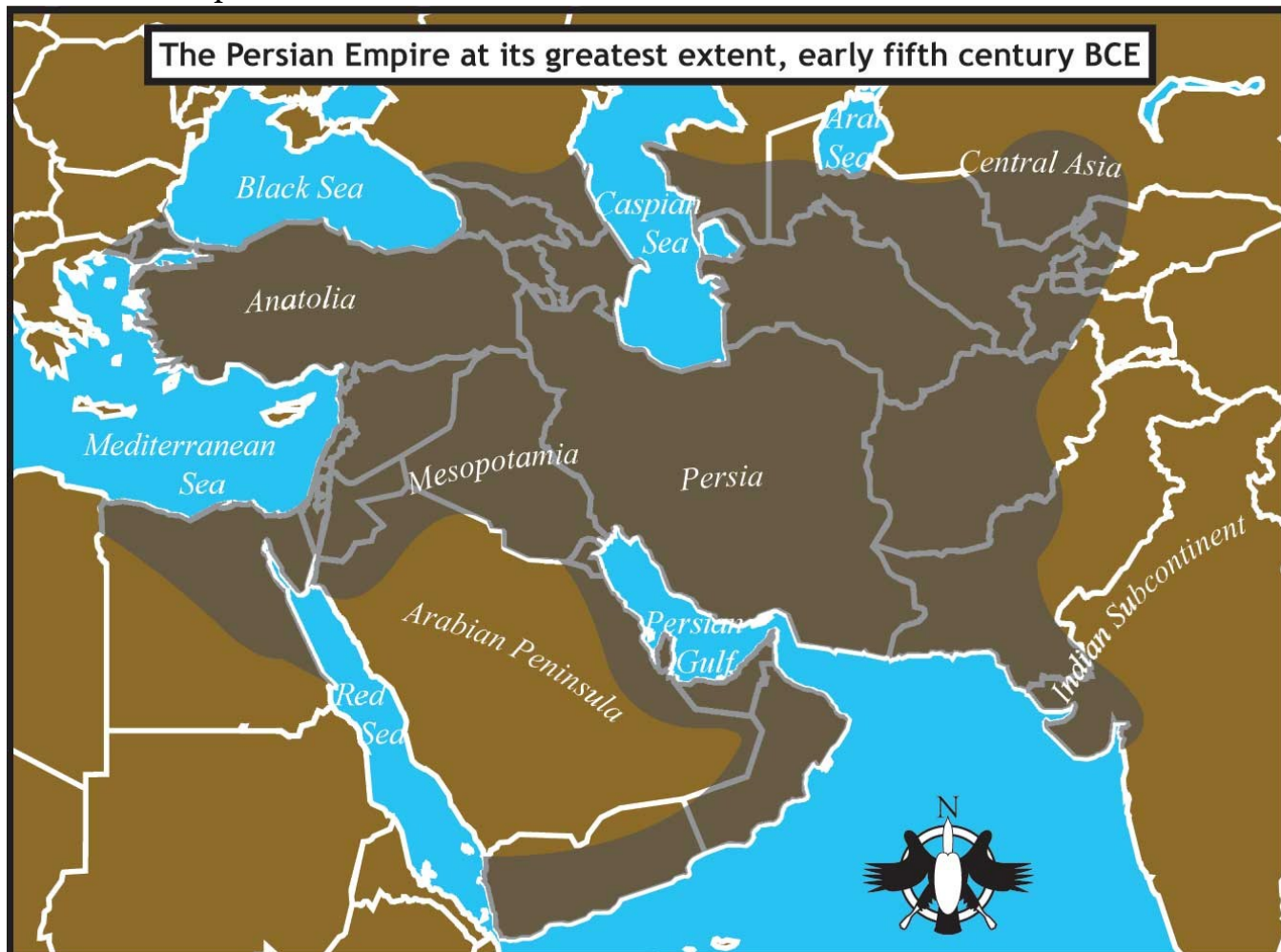


The people in the tale bear no ill-will towards the vultures in normal circumstances; no one seems to be averse to the presence of the birds, and Dani'il calls on the god Ba'l to "mend" the vultures' broken wings once he's discovered that they didn't touch Aqhat's body, indicating that the birds held some kind of intrinsic value. But this benevolent attitude hardens when Dani'il discovers that one vulture has in fact eaten Aqhat; not only is that vulture not mended, and so presumably remains dead, but Dani'il calls on his god to strike down the birds if they so much as fly over his son's grave. Clearly Dani'il, and the Ugarits who recorded his story for posterity, were not enthused at the idea of vultures consuming their dead.

This distaste was not shared by all of their contemporaries, however. The most notable proponents of a vulturine mortuary option in the ancient Near East were the Magi, who are probably best known in the Western world as the Three Wise Men who attended the birth of Jesus Christ. The Magi are among the more elusive characters in this story; little is known about the specifics of their beliefs, or the particulars of their long history, and their role in the development of Near Eastern religion is still fiercely debated among scholars of such things. It is known that the Magi comprised a hereditary caste that was once held in high regard throughout the Near East for its religious fervor.



They would eventually be entrusted with supervision of the national religion of the region's greatest power, the Persian Empire.<sup>[66]</sup>



The ancestral homeland of the Magi was probably located in Western Persia; tradition holds that it lies in what is now the nation of Azerbaijan, on the western shore of the Caspian Sea.<sup>[67]</sup> By the rise of the Achaemenid Empire of Persia in the sixth century BCE, Magi were found throughout the Near East, as far afield as Asia Minor, Arabia, and Egypt.<sup>[68]</sup> Wherever they turned up, this caste of priests was renowned for three quirks. The first was their curious enthusiasm for incestuous marriages. The second was a markedly dualistic worldview, in which all things were divided into creations of “good” and “evil,” and which was applied with particular fervor to the natural world. The third was their traditional funerary practice of exposing the dead to be devoured by Dogs and vultures.

There is no certainty about the date when Magi first abandoned their previous funeral rituals for exposure, though they likely were influenced to do so by earlier or contemporaneous traditions of exposure in the Near East. For that matter, there isn't even complete agreement about what their previous funeral rituals were. One theory, espoused by the Magi expert Mary Boyce, holds that the Indo-Persian ancestors of the Magi initially disposed of their dead by burial, like most other peoples of the Asian steppes (but since no trace remains of their graves, it's impossible to be certain). This dovetailed nicely with their traditional belief that the proper abode of the dead was in the underworld. Early in the third millennium BCE there was a shift in beliefs about the afterlife: some princes, warriors, and, especially, priests began to hope that instead of spending an eternity in the bleak darkness of the underworld after their deaths, they might ascend to the sky, where the gods lived, and

dwell forever in that heavenly paradise. Concurrent with this hope was a belief in the resurrection of the body, or at least of the skeleton; within the first year after death, the sky-dreamers said, the bones of the deceased would be covered with immortal flesh, and would then rise up to heaven to be reunited with its soul. The believers in this promise of ethereal immortality had to find a way to dispose of their mortal flesh; once it was gone, their bones could simply be buried to await resurrection. Partial cremation was the most obvious means of accomplishing this; but the steppe-dwellers had such a great respect for fire, the only element that allowed them to survive their environment's harsh winters, that they preferred to use something else.<sup>[69]</sup> Happily, the steppes abounded in "something else," soaring endlessly on broad wings in search of its dead repast.

Although the Magi practice of exposing their dead to vultures has been sensationalized for millennia, there is remarkably little information to be found about it. The Magi *may* have been the same people as the "Caspian" mentioned by the Greek writer Pollux, who lived along the southern shores of the Caspian Sea, in the same area as the traditional Magi homeland. Pollux reported in the early third century CE that the Caspian deliberately carried their dead into the desert in order to expose them to scavengers, and then watched the proceedings from afar. Although the bodies were often devoured by mammalian scavengers, the Caspian considered it much more auspicious for the corpse to be eaten by vultures.<sup>[70]</sup> (But it was thought to be the height of misfortune for the soul of the dead if no scavengers at all approached its body.<sup>[71]</sup>) These obscure and poorly-documented practices of the Magi would ultimately give rise to the best-known and possibly the longest-lasting tradition of exposure in the world.

To understand this tradition, we must know something of the beliefs that fostered it - especially the legacy of Zoroastrianism. This is the world's oldest surviving monotheistic religion, more ancient even than Judaism. Its founder, known variously as Zarathustra or Zoroaster, was born in northeastern Persia, near the present-day border between Afghanistan and Iran. The dates of his birth and death are unclear, but he is thought to have lived sometime between 1700 and 1200 BCE, probably predating the Jewish prophet Moses by a good margin.<sup>[72]</sup> Zarathustra lived a normal life among his herding people of the steppes; until his 30th year, when he experienced a vision in which an angel visited him and instructed him to worship the all-powerful creator of good, Ahura Mazda. Zarathustra then abandoned the old Persian polytheistic faith and began an endeavor to convert others to his beliefs.

He succeeded wildly, although (like all prophets) his teachings gained far more converts after his death than during his life. By about 600 BCE, Zoroastrianism was the dominant religion in the Near East; its adherents far outnumbered those of any other faith, and wielded great power as believers in the state religion of the mighty Achaemenid Empire. Zoroastrianism was and is similar to the later Judeo-Christian-Islamic religions in many ways; or rather, they are similar to it. Like them, it holds that the world is at the center of a battle between opposing forces of good and evil, which in Zoroastrianism are represented by the god Ahura Mazda on the good side, and the demon Ahriman (also known as Angra Mainyu) on the side of evil. The four monotheistic religions all hold that time and the existence of the world are linear, and will end at some point; that there is no such thing as reincarnation; and that after death, souls will be judged upon their living deeds by the supreme being. Also like many worshippers of the later monotheistic religions, Zoroastrians espoused a near-total contempt for wildlife; more about that later. There are also differences between Zoroastrianism and the later monotheistic religions: Zoroastrians never believed in the concept of original sin, of eternal hell, or of a messiah. Most importantly for the purposes of this book, they believe that death is the ultimate pollution, representing a great triumph for Ahriman, and that the seven greatest creations of Ahura Mazda - earth, water, fire, sky, animal, plant, and man - should not be polluted by the dead. To

bury a corpse in the earth would pollute the earth and the plants growing in it, to dump it in a river or lake would pollute the water, and to burn it would pollute the sacred fire. Contact with a corpse defiles not just the elements, but also the very bodies and souls of those unfortunate enough to touch it.<sup>[73]</sup>

These beliefs would seem to rule out most every conceivable manner of corpse disposal (even cannibalism) - until considering that: (1) non-porous rock is not considered to be “earth” by the Zoroastrians; and (2) the Zoroastrians believe that vultures were created by Ahura Mazda for the sole purpose of disposing of dead matter. It’s uncertain when the Zoroastrians first adopted exposure, although the consensus is that they did so only after contact with the Magi. The earliest archaeological evidence for the practice (in the form of ossuaries carved into rock to hold flesh-stripped bones) is of a surprisingly late date, about 400 BCE, which was well into the reign of the Achaemenid Empire. Even at that point, the practice may not have been considered a religious responsibility; according to the ancient Greek historian Herodotus, the Zoroastrian Persians preferred to cover their dead in wax and entomb them, while the Magi separately carried on with their exposure rituals.<sup>[74]</sup> But he also wrote, “There is another custom which is spoken of with reserve, and not openly, concerning their dead. It is said that the body of a male Persian is never buried, until it has been torn either by a dog or a bird of prey.”<sup>[75]</sup>

As that statement suggests, the Zoroastrian exposure rituals were similar to the Caspii ceremonies reported by Pollux, and both similar to and different from those practiced at Çatal Höyük so long ago. Zoroastrian Persians carried their dead upon a bier to a rocky hilltop, bare mountainside, or isolated stretch of stony desert (none of which were “earthy,” and so could not be polluted), and clamped or tied the corpse's arms and legs to the ground, in order to prevent any creatures from dragging it towards vegetation, water, or human settlements, all of which had to be preserved from the corpse's inherent uncleanness. The intact body was then devoured by scavengers: primarily vultures, especially Eurasian Griffons and Monk Vultures, but also other scavenging birds and Dogs. This practice was known in the archaic Persian language as *khurshed nigerishn*, “beholding by the sun,”<sup>[76]</sup> as the sun was believed to destroy the pollutants inherent in the dead body as it disintegrated its flesh, and its rays provided a bridge by which the spirit could ascend to the sky. After the beholding ritual was complete and the body had been skeletonized, the sun- and wind-bleached bones were removed and placed in stone ossuaries known as *astodans*, to rest until the time came for them to be clothed by immortal flesh; or eternity, whichever came first.<sup>[77]</sup>

Despite all of the mystical trappings, the Zoroastrians were under no illusions about the rather earthy results of their funerals, judging from what the Zoroastrian *Vendidad* (Book of Laws) had to say about vulturine feeding habits:

There dies a man in the depths of the vale: a bird takes flight from the top of the mountain down into the depths of the vale, and it feed on the corpse of the dead man there: then, up it flies from the depths of the vale to the top of the mountain: it flies to some one of the trees there, of the hard-wooded or the soft-wooded, and upon that tree it vomits and deposits dung. (Fargard V, 1a:1, translated by James Darmesteter)

At some point during the evolution of the beholding ritual, Dogs were no longer allowed to take an active part in consuming the corpse. (It's common knowledge that carnivores which have eaten dead humans become less reluctant to attack live ones; perhaps the Zoroastrians had by this point lost a few too many children and elderly persons to their furry undertakers.) Afterwards, Dogs were used only in the ritual known as *Sagdid*, in which the female demon Nasu, who corrupts the corpse in the form of a

fly, is driven from the body by a canine's gaze.<sup>[78]</sup> The vultures were then entrusted with the entirety of the excarnation.

In the heyday of Zoroastrianism, this practice of beholding was the norm throughout most of Persia, and it commanded a great deal of respect even from those who did not practice it. The bodies of royalty were sometimes treated differently; that of Cyrus the Great, the first emperor of the Achaemenid Empire, was first embalmed and then placed in a tomb, which still stands to this day. This has been interpreted as evidence that Cyrus and other Persian rulers were not Zoroastrians; after all, the very existence of tombs for the dead is roundly condemned in Zoroastrian holy literature.<sup>[79]</sup> But these royal tombs were made of stone, and built high off of the ground, so they at least conform to the strictures against pollution; besides, there's nothing unusual about rulers holding themselves above the laws (religious or otherwise) for which they demand absolute obedience from their subjects.

For less exalted believers, at least, failing to dispose of a body in this manner was a serious offense. The *Vendidad* contains this passage in the section dealing with Uncleaness:

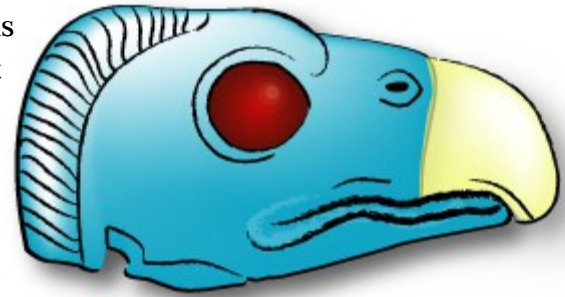
If the worshippers of Mazda have not, within a year, laid down the dead on the dokhma, his eyes toward the sun, thou shalt describe for that trespass the same penalty as for the murder of one of the faithful; until the corpse has been rained on, until the dokhma has been rained on, until the unclean remains have been rained on, until the birds have eaten up the corpse. (Fargard V, 3:14, translated by James Darmesteter)

In other words, failing to ensure that the body of a Zoroastrian underwent beholding was a capital offense, and those responsible for such negligence could be punished by death. (Still, there are believed to have been dissident sects that abstained from beholding for one reason or another.<sup>[80]</sup>) Although it's impossible to give an estimate of just how many bodies the vultures ate every year, this ritual certainly did provide the birds with a tremendous amount of carrion, and it is likely that as a result the vultures of Persia were more numerous in the Zoroastrian era than at any time before or since. Some historical accounts state that the Persian Zoroastrians disposed of their sacred Dogs' bodies in exactly the same manner as those of humans;<sup>[81]</sup> if the superabundance of present day sacred animals, such as the domestic Cattle of Hindu India, are any indication, this practice likely gave the vultures many tons of additional food.

The ancient Zoroastrians' relationship with the vultures to which they entrusted their deceased was, in a word, complicated. Evidently, Zoroastrianism was infused with the dualistic worldview of the Magi at the same time as the practice of exposure was adopted from those mysterious priests. This view held that any given animal was either "clean" (good) or "unclean" (evil). Foremost among the clean animals was the Dog, followed by various other domesticated animals and some wild herbivores. Far more numerous and varied were the *khrafstras*, evil creatures, created by Angra Mainyu to pollute or destroy the good creations of Ahura Mazda. The *khrafstras* included all creatures that were considered harmful or repulsive to man, whether because they were thought to pollute the sacred waters by dwelling in them (turtles), because they were believed to be potentially dangerous to humans and livestock (Lions, Wolves, snakes), or because the Zoroastrians just didn't like the looks of them (lizards, insects). Killing any and all of these creatures was a meritorious act for the true believer<sup>[82]</sup> - and it was done frequently and with much enthusiasm, to judge from Herodotus's description of how "the Magi with their own hands kill everything but dog and man, and they vie mightily with each other in so doing, killing alike ants and snakes and everything that creeps or flies."



Herodotus was mistaken in at least one respect: the Magi and their Zoroastrian students didn't go out of their way to kill vultures, or other scavenging birds. Vultures ([below](#)), described as "the greediest of the corpse-eating creatures made by the beneficent Spirit" in the *Vendidad* (Fargard III, 3:20-21), were among the very few carnivorous wild animals that were not dubbed *khrafstras*. They were therefore placed in a rather unique position in Zoroastrian belief. Vultures, the "compassionate purifiers,"<sup>[83]</sup> were thought to have been brought to life specifically for the purpose of devouring dead matter and dispelling its pollution, much as magpies were created to destroy locusts and Dogs to repel Wolves.<sup>[84]</sup> Furthermore, vultures could dispel the evil inherent in death just as the sacred Dogs could; apparently, they were the only wild animals to be accorded this great power. If a Dog was unavailable for a funeral, Zoroastrian dogma enjoined that a vulture must see the corpse (before it was eaten, of course), and so dispel the corpse-demons by its gaze.<sup>[85]</sup> And yet, vultures were still considered to be unclean in some sense. Like many other Asian peoples, the Persians used the flight feathers of vultures to fletch their arrows. But whereas others used vulture feathers only because of their great size and tensile strength, the Persians also used them because it was believed that their uncleanness would infuse the arrows with the power to harm the enemy twice over, by polluting their spirits as well as piercing their bodies.<sup>[86]</sup>



One vulture was held in especial esteem among the Zoroastrians. The Lammergeier, the *Homa* or *Huma*, was recognized in ancient Persia as the most ambitious and portentous of all creatures. Its prowess in flight among the tallest peaks was proverbial; the Persian national epic of the *Shahnameh* writes of horrific places in high mountains that "even that auspicious bird the homa couldn't fly over",<sup>[87]</sup> and heavily defended castles that "no one can defeat . . . and enter . . . unless he has a vulture's or a Homa's wings."<sup>[88]</sup> Elsewhere in the Old World, the Lammergeier was commonly held in high esteem because of its grace in the air, great size, and startling appearance; but in Persia, almost uniquely, the vulture's strange diet also factored in its veneration. In his mid-13th century book *Gulistan*, the Persian poet Sa'di declared that, "The homa excels all other birds in nobility; Because it feeds on bones and injures no living thing." (I.15) So noble was it that its name gave rise to the Persian word for "august," (or sometimes "fortunate"), *humayun*.<sup>[89]</sup>

The name itself is a bit odd; *homa* has nothing to do with the concepts of eating, grabbing, tearing, or even appearing, and so it follows none of the usual patterns for vulture names that are found in Eurasian languages. The reason why it doesn't offers one of the most fascinating and bizarre tales to be found in the annals of philology; a tale that begins with the sacred drink of the prehistoric Indo-European ancestors of the Persians, the famed *soma*. *Soma*, though thought of as a single entity, took three forms: a god, commonly referred to as "King Soma," a plant, and a drink made by pressing parts of that plant. In Indo-European society the rituals of drinking the sacred liquid and slaying animals as sacrifices to the gods were commonly performed together; thus *soma* was imbibed in honor of soma, a toast for the sacrifice of flesh, and it was thought that the *soma* was ritually slain anew as each plant was pressed to produce the drink.<sup>[90]</sup> Once a small amount of liquid had been squeezed, it was mixed with water or milk and consumed. The ancient Indian scriptures, the Rig Veda, contain a "*Soma Hymn*" (Book 8, Hymn 58), which is rife with enthusiastic descriptions of the effects of *soma*; it's said that that the "glorious drops" grant immortality, allow one to attain the light, knot the joints, prevent one's feet from slipping, preserve one from disease, give clearer sight, and overall makes one "shine bright like fire produced by friction."

According to Vedic legend, the plant that produced this marvelous concoction wasn't originally found on earth. It's said that Soma, as a god, originally dwelled only in heaven, and was brought to earth against his will. In the simplest version of the legend, the gods dwelling upon earth decided to send a bird to bring Soma to them. After a couple of failed attempts by other birds, a bird of prey, the *syena* or *gayatri*, was sent. *Syena* scared away the guardians of Soma, grabbed him with its talons, and flew off - but not before one of those guardians, an archer, shot an arrow that severed one of its feathers, which fell to earth and became a *parna* (betel-leaf) tree.<sup>[91]</sup> When Soma was brought to earth, he was pressed in plant form and given as a drink to the god Indra.<sup>[92]</sup> The bird that brought Soma was clearly a powerful creature; as Soma himself states in the Rig Vedas, "Not indeed with ease did he carry me off; he was superior in strength and heroism . . . he crossed the winds with mighty force."<sup>[93]</sup> Yet its intended identity is unclear; in modern analyses, the bird is usually identified as an eagle<sup>[94]</sup> or falcon.<sup>[95]</sup> The Lammergeier can also advance a claim; in the *Puranas* (Hindu texts which postdate the Rig Veda), the bird of prey that brought *soma* from heaven was identified with Garuda,<sup>[96]</sup> a mythical bird which, as we'll see in the next chapter, was [patterned after the Lammergeier](#); and some Indian folktales also tell of Garuda bringing the "nectar of immortality" from heaven.<sup>[97]</sup>

By whatever name, the humans dwelling upon earth had good reason to be thankful to the *syena* for its gift of *soma*. They were blessed indeed to be able to quaff the drink of the gods, a potion that could grant almost-divine qualities to anyone who imbibed it. Based upon ancient descriptions, the effects of *soma* were not hallucinogenic, but stimulating, boosting physical and mental stamina like an ancient analogue of a modern energy drink. At some point knowledge of the *soma* plant, and thus of the *soma* drink, was entirely lost in India;<sup>[99]</sup> although belief in the god Soma and the legend of the *syena* carrying him to earth still persisted. Further west in the Indo-European cultural area, in Persia, the vital knowledge surrounding the plant and drink persisted, despite attempts to stamp out the practice of producing and drinking *soma* during the early years of Zoroastrianism.

Which brings us to *Homa*, also transliterated as *haoma*, *hom*, or *hum*. *Homa* was originally the same plant, drink, and deity as the *Soma* mentioned so many times in the Vedas.<sup>[100]</sup> It was the sacred plant of the Persians from time immemorial; and although the god Soma was one of the many old Persian deities shunned by Zarathustra and his followers, the ritual of partaking of his sacred drink continued, and persists to this day. After the Muslim conquest of Persia in the 7th century CE, most of the traditions of Zoroastrian Persia gradually faded away (or moved back to India), but the conservative Zoroastrians of the Yazd area in central Persia maintained theirs, including the use of *homa*. In the late 19th century, interested scholars who journeyed to Yazd found that the Zoroastrians dwelling there grew a plant that they called *hum* or *homa* for ritual use, and that they exported it to the Parsis, the Zoroastrians dwelling in India. Their *homa* was none other than the Ephedra plant, an herb with a long and illustrious history of medicinal use, most famously as the source of the modern drug Ephedrine. Many dialects of Persian as well as other languages in the Iranian area use *hom* or a similar word as the name for the local varieties of Ephedra. And though there has been much debate upon the identity of the *soma* plant, at this point the evidence is fairly conclusive that the *homa* herb used by the modern Parsis, Ephedra, is similar if not identical to the *soma* described by the Indian Vedas.<sup>[101]</sup>

The Zoroastrians of Yazd celebrated their last *homa* services in the 1960s,<sup>[102]</sup> but the Parsis of India still continue to imbibe the mysterious ambrosia. As the hot, wet climate of lowland India prohibits the growing of any local *homa*, the Parsis must import their supply of the herb from elsewhere, typically from the cooler, higher climes of Afghanistan. In the Zoroastrian Avesta, the faith's primary collection of sacred texts, the ninth and tenth Yasnas repeatedly state that *homa* grows

and flourishes in mountains, much as the ancient Indian scriptures maintain that *soma* could be found only in the mountainous regions of northwestern India, especially Kashmir and the upper reaches of the Indus River.<sup>[103]</sup> But more than just the drink itself survived in Persia; the Indian tradition that the plant, drink, and god (which became an "angel" after the spread of monotheistic Zoroastrianism) had been carried down from heaven by a great bird of prey was maintained in Persia; as is confirmed in the Yasnas, the Zoroastrian liturgical texts. Line 11 of the tenth Yasna speaks to Homa, "the bounteous birds have carried thee to the Peaks-above-the-eagles, to the mount's extremest summit, to the gorges and abysses, to the heights of many pathways, to the snow-peaks ever whitened." Clearly there was an opportunity here for the bird, the bringer of Homa, to be identified with its gift; particularly since both herb and vulture favored the same habitat. Both the Lammergeier and the Ephedra plant prefer to dwell in cool, dry mountains, and do not thrive in hotter, wetter lowlands. One traveler to Persia during the late 19th century, when the modern use of Ephedra was discovered, recorded that the Lammergeier was "generally distributed throughout all the hilly parts of the country, but was not observed below about 4000 feet [1,220 m] above the sea-level."<sup>[104]</sup> Being so widespread, it must have been no uncommon sight for the shadow of one of the enormous birds to fall upon the Homa plant, the giver of stamina, the source of the sacred ambrosia. Just why Homa was identified with the Lammergeier specifically, rather than some other bird of prey, is made clear by the Hom Yast (IX), which describes Homa as "golden-hued" (IX: 16) and "yellow" (IX: 30-32), much like the hues sported by the Lammergeier upon its white feathers. It wouldn't be difficult to visualize the golden color of the *homa* plant rubbing off upon the bird that had first carried it down from the heavens.

The Hom Yast (Yasna IX) makes clear that the worshippers of the multifaceted Homa expected a great deal of him. Line 17 reads:

I make my claim on thee, O yellow one! for inspiration. I make my claim on thee for strength; I make my claim on thee for victory; I make my claim on thee for health and healing (when healing is my need); I make my claim on thee for progress and increased prosperity. [Translated by James Darmesteter]

The same Yasna goes on to beseech Homa to grant the power to overcome evildoers in demon, human, and animal form, and to grant their desires and victory in their endeavors. (Yasna IX, 18-21). It seems that in Zoroastrian Persia, to the three mythical forms that were said to be taken by Soma/Homa (god, plant, and drink) were added a fourth: a vulture, the bird thought to be responsible for bringing this great gift to earth and to humanity. To the Persians, it was only appropriate that the far-sighted golden vulture and the bringer of the golden plant share the same title. In the Hom Yast, Homa is beseeched to grant victory, to fulfill wishes and desires, to help one see through lies, even to bestow immortality; in short, to bestow something like the ideal of royalty. And, as the Homa, the Lammergeier could do just that - merely by casting its shadow upon a person.

More than just the bringer of divine ambrosia, the Persian Lammergeier was believed to be the protector of kings and of royalty in general, in both the Achaemenid and the much later Sassanian Empires. The long persistence of this belief, coupled with its role as part of Persia's national legend, suggests that its origins were very ancient.<sup>[105]</sup> It may even have dated back to the prehistoric Vulture Cult, and have been a somewhat more informal (and gender-neutral) equivalent to the Egyptian belief that vultures were the mothers of kings. The Homa was said to be entrusted by Ahura Mazda with a most illustrious and important task: the duty of choosing each new king of the Persian Empire. This was accomplished by an odd yet practical expedient: if the shadow of a flying Homa fell upon a man,



bestowing the magnificence of the king of birds upon him, he would become the next ruler of the Persians.<sup>[106]</sup> In later medieval times, this belief seems to have become more generalized, and it was nebulously said that shadow of a Homa would put a person on a throne; but the belief always referred very specifically to this bird, and no other.<sup>[107]</sup> As Sa'di put it in the *Gulistan*, "No one goes under the shadow of an owl; Even if the homa should disappear from the world." (I.15) Appropriately, the kings elevated to their thrones by the golden vulture's shadow decorated their crowns with Lammergeier feathers,<sup>[108]</sup> and according to Persia's national epic, the *Shahnameh*, this tradition dated back to the time of the legendary heroes Sam, Zal, and Rostam, long before Zoroastrianism came to Persia.<sup>[109]</sup>



To this day, the Lammergeier is still popularly known as the *Huma* in Iran. Although its status as an exalted bestower of royalty has faded away over the centuries, the influence of the beliefs that surrounded the golden vulture can still be found inside and outside of Persia proper. There's a longstanding belief in Iran and other areas once ruled by the Persians, such as the Caucasus Mountains, that anyone who kills a Lammergeier (left) for any reason will die within 40 days.<sup>[110]</sup> It isn't certain whether this belief stems from popular superstition or if the Persians actually had laws against killing the Huma; nevertheless, the potential consequences were taken very seriously. In his book *Baznama-yi Nasiri* ("A Persian Treatise on Falconry"), the falconer Husam al-Daulah Taimur Mirza wrote that the superstition was popularly held among 19th century Persians, and related a good reason for taking this superstition to heart:

Once, when out hawking, I saw one of these fateful birds seated on a stone a short distance from me. With me was a servant, a sturdy villain fearing nothing. Gun in hand he approached the Lammergeyer, bent on slaughter. Do all I could, I failed to dissuade him. I told him the popular superstition, but he laughed and said, "Oh! that's an old woman's story." Heedless of my advice he shot the Lammergeyer, and died himself on the fortieth day. This is a fact: I myself was an eye-witness. Was his death a mere coincidence, or is there truth in the vulgar belief? God knows. [Translated by D. C. Phillott]

Mirza added that when he later mistakenly captured a Lammergeier with trained falcons during an eagle-hunting expedition, he recalled the fate of the servant and hastily released the vulture unharmed as soon as he realized what it was.<sup>[111]</sup>

Outside of Persia's area of influence, the true identity of the Huma was lesser known (and it still is, as many modern books about ancient Persia lazily describe the Huma as a "mythical bird"). But that identity could still be reaffirmed by those in the know. In the year 1625, the Mughal Emperor Jahangir and his retinue were encamped near present day Lahore, Pakistan. The Emperor had already been informed that in this area, "there existed the bird known as the Huma. People of that district stated that its food was fragments of bone, and that the bird was ever to be seen sailing in the air, seldom seated on the ground." With the curiosity that only bored royalty can ever know, the Emperor decreed that if any of his royal guards shot a Huma and brought it to him, that guard would receive a thousand-rupee reward. As he recorded in his memoirs, it wasn't long before:



It so happened that [a guard] shot one and brought it to Our August Presence. As it was merely wounded in the leg, it reached Us alive. We directed that its crop should be examined. The crop was accordingly opened and was found to contain nothing but fragments of bone. The hillmen informed Us that its food consists entirely of bits of bone, and that it is ever seen sailing in the air questing, with its attention turned towards the earth; and that whenever it spies a bone, it seizes it in its beak, and rising aloft casts it on a rock and shatters it, and then descends and eats the shattered fragments. It therefore appears to us most probable that this is the Huma so well known by name.<sup>[112]</sup> [Translated by D. C. Phillott]

The fabled 40-day curse apparently failed to strike either Jahangir or his royal guard, so the killing of this particular Huma went unavenged.

Needless to say, this illustrious bird popped up in many Persian stories and legends over the centuries. Among the Huma's more notable appearances was that in Farid Ud-Din Attar's story *Mantiq Ut-Tair*, "The Conference of Birds," composed in the 12th century AD. In this spiritual allegory, the Hoopoe attempts to gather all of the other birds together in a quest to find the Simurgh, the mythical, mountain-dwelling king of all birds, whose heretofore doubtful existence has been confirmed by one of its feathers falling to earth in China. The birds are initially as excited as can be at the prospect of undertaking such an odyssey; but, upon realizing just how long and arduous it will be, one by one they begin to make excuses in attempts to exempt themselves from going.

The excuse of the Huma, "the Giver of Shade, whose shadow bestows pomp on kings", is worth repeating in detail:

Birds of land and sea, I am not a bird as you are. A high ambition moves me and to satisfy it I am separated from other creatures. I have subdued the dog of desire, therefore are Feridood and Jamshin [two Persian kings] dignified. Kings are lifted up by the influence of my shadow, but beggarly-natured men do not please me. I give a bone to my dog of desire and put my spirit in surety against it. How can men turn their head away from him whose shadow creates kings? Beneath my wings everyone seeks shelter. Do I need the friendship of the lordly Simurgh when I have royalty at my disposition?



The Hoopoe was just as eloquent in her reply:

O slave of pride! Spread no more your shadow and boast no more of yourself. At this moment, far from conferring power upon kings you are like a dog busy with a bone.<sup>[113]</sup> God forbid that you put a Chosroes

[tyrant] on the throne. But supposing that your shadow sets rulers on their thrones, tomorrow they will meet misfortune and be forever deprived of their royalty, while, if they had never seen your shadow, they would not have to face to terrible a reckoning on the last day. [Translated by Garcin de Tassy and C. S. Nott]

She then illustrated her point with the story of the Sultan Mahmud and the Sage, in which the Sage saw and spoke to the dead Sultan in a dream. The Sultan bitterly regrets his earthly pride and vanity; his power, he said, was as nothing next to that of the true sovereign. The Sultan concluded by ordering the Sage to give his blessings to his son, and to tell him, "If you would have understanding take warning from your father's state. May the wings and the feathers wither of that Huma which cast its shadow upon me!"<sup>[114]</sup> (It isn't clear from the remainder of the story if the Huma found the Hoopoe's argument persuasive enough to join the quest.)

Although it's unlikely that Farid or any of his contemporary readers were aware of it, the Huma may have had one more reason to avoid seeing the Simurgh: namely, that it *was* the Simurgh, and that it can't be an easy thing for a real bird to meet its mythical doppelganger. In Persian mythology the Huma and Simurgh are frequently synonymous and interchangeable;<sup>[115]</sup> and although the Simurgh in *The Conference of Birds* is an abstract, semi-divine presence, in the much older Persian national epic of the *Shahnameh* it is flesh and blood, and clearly patterned after a large, mountain-dwelling bird of prey. The epic is also very specific about the "where" and "how" of its actions, suggesting that they had some basis in reality.

The Simurgh's first appearance in the *Shahnameh* is found in the story of Sam, a great warrior of ancient times, and his son. Sam's newly born son was a beautiful and charming boy, but had one very conspicuous fault: his hair was as white as newly fallen snow. When Sam saw this he despaired, deciding that the deformity must be an ill omen from some higher power. He thus ordered that the infant be taken away and abandoned, in the rugged mountains where the Simurgh made her home. This was done, and all believed the infant would soon be dead.

Before long, the Simurgh, who had young of her own to feed, came upon the naked and crying infant laying on the rocks. She flew down from the clouds and clutched him in her claws, then lifted him into the sky. She took him back to her nest in the Elburz Mountains, intending to dismember him and feed his body to her chicks, as she would any other prey. But (so the story goes) God had other plans, and when the Simurgh and her chicks had a good look at the infant, they refrained from eating him. Instead, they cherished his presence, feeding and protecting him in the nest of the world's mightiest bird. The boy grew large and strong in the Simurgh's nest, nourished by the best tidbits that she could find, even as all believed that he had met his doom in the godforsaken mountains. Only a few intrepid travelers into the mountains had reported hearing a child's chattering near the nest of the Simurgh, or even seeing a young boy peering down at them from his lofty perch; and such tall tales were dismissed as mere rumors by most.





Some years after the birth of his son, Sam began to have dreams in which he was reproached by spirits for having abandoned his child. The rumors of a young boy who dwelled in the Simurgh's nest had by now spread far and wide; and Sam, after consulting with priests and sages, concluded that this legendary youth was actually his son. Bitterly regretting what he had done, Sam then set out for the mountains where the Simurgh was believed to live. After some searching, Sam's party found a mountain so high that its peak reached the stars of the Pleiades, upon which lay a great nest woven from sticks of ebony and sandalwood; this, surely, was the home of the Simurgh. From its base, Sam could only stare in trepidation at the almost-vertical granite slopes and at the terrifying Simurgh circling overhead. He prayed to God that if the young man dwelling on this peak was indeed his son, and not the spawn of a demon, that He might help him to climb the mountain ([left](#)).

The Simurgh had seen everything, of course, and said to her surrogate offspring, "You have endured the hardship of growing up in this nest, and now your father, great Sam, who is a champion among heroes, has come to this mountain searching for his son; he honors and

values you now. I must give you back, and return you to him safe and sound." The boy replied: "You have tired of my friendship, then? Your nest has been a noble home for me, and two of your feathers have been a glorious crown for me." The Simurgh sighed, and said, "When you see the throne and crown and the ceremonial of the court, this nest will mean nothing to you. Go, and see what fate has in store for you. Take these feathers of mine with you, so that you will always live under my protection, since I brought you up beneath my wings with my own children. If any trouble comes to you, if there is any talk of good and ill, throw one of my feathers into the fire, and my glory will at once appear to you. I shall come to you in the guise of a black cloud and bring you safely back here."

The Simurgh then hardened her heart, for she had grown fond of the lad during their time together, and lifted him from the nest that had been his home for so long. She carried him down from



the mountain and set him before Sam, who wept and paid homage to the great bird for delivering his son back to him. Though his hair was still white, the boy had grown into a very impressive figure, and he and his father returned in triumph to the court of the Persian king. There, the boy was christened with the name of Zal, and accepted as the heir to Persia's greatest warrior.<sup>[116]</sup>

The story of Zal and the Simurgh is ordinarily regarded as entirely mythical; but, whether based on actual events or not, some of its details do have the ring of history, starting with the circumstances under which Sam was abandoned. In many, and perhaps most, preindustrial societies there were longstanding traditions of abandoning infants that were perceived as imperfect in some way (usually due to physical deformities, such as the Zal's white hair), or that were simply unwanted. It seems that the most popular way of carrying this out was to take the infant in question to a remote, often mountainous area, where there was little chance of another human coming across it, and then leaving it for fate to dispose of as it might. The unfortunate infant would then be out of sight, and out of mind - but, for certain scavenger-predators, definitely not out of reach.

It isn't known for certain why mountainous areas were so heavily favored for infant abandonment, but it could partly be for the very prosaic reason that mountains were the favored haunts of many carnivorous animals that could be expected to hasten the process, as it were. Herodotus seems to have thought as much; in his account of the eventful early days of Cyrus, Persia's greatest leader, he wrote that the infant emperor's grandfather ordered that the baby be exposed "in pastures and hills most suitable for this purpose, since they were full of wild beasts," and that the herdsman delegated with the task was directed "to take this child and abandon it in the most desolate spot on the mountains so that it will die as quickly as possible."<sup>[117]</sup> And the most mobile of those wild beasts, of course, were the large birds of prey. The actions of such birds upon finding a conveniently-sized creature that, whether alive or dead, was immobile and incapable of self-defense, can easily be predicted. As we'll see [in Chapter 7](#), there's reason to believe that in Europe the Lammergeier's sinister reputation was due in part to its attraction to abandoned infants, and this was likely also true in ancient Persia. The unique foraging behavior of Lammergeiers - following ridges and escarpments as they fly just a few yards from the ground, scanning the surrounding areas for food - makes it quite likely that they would most often find such infants before anyone or anything else. And, unlike most other vultures, Lammergeiers will readily lift small carcasses and fly off with them - perhaps even with small living creatures that are as immobile as carcasses.

The portion of the tale that relates how Zal thrived under the care of the Simurgh and her chicks is a bit more incredible. Certainly, if an infant was still alive after being abandoned, snatched, carried off, and deposited in a Lammergeier's cliff-side nest, it would stand some chance of surviving for a further day or two. One might expect that it would be immediately killed by the chicks or their parents; but birds of prey often provide their nestlings with a surfeit of food, far more than they can possibly eat (Lammergeier nests are often surrounded by piles of bones and portions of carcasses), and it's a well-known peculiarity of some birds of prey to bring living animals back to their chicks. Such prey isn't always killed, and it may escape or even dwell in the nest for a brief time. In short, the story of Zal and the Simurgh may actually be an exaggerated and mythologized account of a bizarre but substantially true event.

The Simurgh's next appearance in the *Shahnameh*, on the other hand, properly belongs in the realm of magic. The mythical bird shows up again when the grown-up Zal's bride Rudabeh has become pregnant and gravely ill. Remembering the advice given him by the Simurgh before he left its nest, Zal burned a small part of the feather that his avian nurse had bequeathed to him. The air darkened, and the Simurgh magically appeared before their eyes, in the midst of Zal's palace. Still



weeping over his wife's predicament, Zal made obeisance to the bird, his surrogate mother; but the Simurgh told him not to be sad, for all would be well. His wife would survive, as would his son, who would become an even greater warrior than he. The bird then prescribed a rather complicated procedure, essentially a crude Caesarian section, which would save both mother and child. For our purposes, the relevant part of the procedure was that after Rudabeh's belly had been cut open, the child removed, and the wound sewn up, Zal was told to stroke his wife's body with a feather that the Simurgh plucked from her wing, "since its shadow will be auspicious." After leaving this feather behind, the Simurgh flew off, and all worked out just as the bird had said; the child who would become the hero of heroes Rostam was born, and Rudabeh was healed.<sup>[118]</sup> This portion of the *Shahnameh* clearly owes much to the old Vulture Cult, and the beliefs that vultures such as the Lammergeier were important to motherhood and had intrinsic healing aspects; there also appears to be some interplay with the beliefs surrounding the Huma, as it's said that the *shadow* of the feather would "be auspicious."

It is wholly mysterious why the Persians felt it necessary to separate Lammergeier's mythical imprint upon their culture into the Huma and Simurgh - to the point where, as in *The Conference of Birds*, the two birds could actually face the prospect of meeting each other. The resulting confusion of identity makes Disney's "If Pluto is a dog, then what's Goofy?" conundrum seem clear-cut by comparison. There certainly are a great many similarities to be found between the Simurgh and Huma, even when the two are written of as separate entities: both are large, striking, mountain-dwelling birds that are capable of carrying heavy objects aloft, are thought of as rulers, and command great respect. The aside in *The Conference of Birds* that the Simurgh's existence was demonstrated to the other birds by a feather falling to earth in "China" (always a common euphemism for "someplace in the mysterious East") is very similar to the Indian legend of an archer shooting off a feather of the bird that brought *soma* from heaven, which fell to earth and became a tree, and at least some tellers of the latter tale identified the *soma*-bringer as Garuda, a mythical bird that was itself based on the Lammergeier. Even the *Shahnameh* mentions that Simurgh feathers are used as symbols of royalty in exactly the same fashion as Huma feathers; when Zal still resides in the Simurgh's nest, he says to her "two of your feathers have been a glorious crown for me"; and later in the story a scene is described in which Sam sits alongside Zal and Rostam "with the feathers from the lammergeier, signifying royal glory, depending from his crown".<sup>[119]</sup> But, although the circumstances in which the feathers are used and their significance in those circumstances are identical, the story betrays no knowledge that Simurgh and Huma are really one and the same.

The most likely reason for this apparent blind spot is that these two different manifestations of the Lammergeier had different origins; perhaps that of the Simurgh, which bears less resemblance to the real Lammergeier than does the Huma, is the more ancient, and originally belonged to a culture that predated that of Persia proper. Though the folklore surrounding the Huma clearly drew certain elements from the ancient Vulture Cult, it was less modified from the traits of the flesh-and-blood Lammergeier, and therefore was likely of more recent provenance than the fantastic Simurgh. Considering its supernatural powers and the apparent veneration in which it is held by humans and birds alike, the Simurgh could actually be a deity from a Persian religion that predated Zoroastrianism; a deity that was incorporated into the new monotheistic religion as a creature less than divine, but assuredly more than natural. The very word *simurgh* is probably very ancient, as it's essentially an amalgam of the old Indian name for the soma-bringer, *syena*; and *murgh*, a term for vultures derived from a millennia-old Indo-European root word: *\*mer*, meaning "gleam" or "sparkle," and/or *\*merbh*, "shine" or "appear."<sup>[120]</sup> The latter part of the name follows a clear pattern for

Lammergeier monikers across Eurasia: its ancient Greek name *phene* also meant "appear,"<sup>[121]</sup> and one of its older Hindi names, *argul*,<sup>[122]</sup> means "shining" or "jewel-like."<sup>[123]</sup> Like many other very ancient words for vultures, *murgh* has since become generalized; it can now be applied to any kind of bird in Persian, and to some extent in other Asian languages as well.<sup>[124]</sup> In Persian, the initial syllable of the fantastic bird's name, *si*, came to mean "thirty". In *The Conference of Birds*, Farid Ud-Din Attar's used the similarity between the ancient name and its two modern homophones to end his tale with a neat play on words: at the conclusion, when only thirty birds remain on the quest for the Simurgh, they at last learn that he was within them all along; that in fact *they* are the *Si*-(thirty) *murgh* (birds).<sup>[125]</sup>

According to the *Shahnameh*, when the Persian Empire's nemesis and destroyer Alexander the Great (or "Sekandar," as he is dubbed in the story) prepared to attack the Empire, "he set out followed by his banner, on which images of the bird of royal fortune, the huma, and the beloved cross were embroidered in red on a turquoise ground."<sup>[126]</sup> Though it isn't impossible that Alexander would have used an image of the Lammergeier in such a manner - remember, all of this took place long before the Roman Empire made the eagle the default image of royal power in Eurasia - it's most likely a case of the Persians retrospectively attributing their singular symbol of royalty to a powerful and feared foe who ruthlessly conquered their land. Of course, the Persians weren't the only ones who could impose their cultural norms into places where they didn't belong; the Greek historians Herodotus and Xenophon, the battle standard of the Achaemenid Persians whom Alexander fought and conquered was a gold-colored eagle, with wings spread, painted on a white flag.<sup>[127]</sup> In fact, Persian miniatures clearly show that the bird depicted upon the Achaemenid standard (right) was a bearded Huma. An image of the Lammergeier, a vulture, was carried at the head of the armies of what was (until Alexander conquered it) probably the most powerful nation in the world; and a vulture was a most appropriate symbol for the world's first truly multicultural empire. No doubt the vulture banner was flying high several centuries earlier, when Cyrus the Great and the vast army of his Achaemenid Empire conquered Babylonia and freed a certain small tribe (or rather, a collection of small tribes) who were being held captive by that nation's despots. The Bible certainly suggests as much; its Old Testament recounts that when Yahweh told the Jews that he would grant them deliverance from Babylonian captivity, he said that he was "calling a bird of prey from the east, the man for my purpose from a far country." (Isaiah 46:11).<sup>[128]</sup> After the overthrow of Babylon, the Jews recognized this passage as a prophecy, which accurately foretold that Cyrus and the legions of far-away Persia would come to their rescue. There was no forced conversion to Zoroastrianism under Cyrus's rule; once freed, the Jews were welcome to worship their own god back in their own holy land. The mighty bird of prey from the east might even have recognized a certain kinship with those whom he freed; for the Jews, too, emblazoned the image of a mighty vulture on their flags - or at least one of their twelve tribes did. The Israelites knew today's constellation Aquila as *Nesher*, the Vulture, and according to the *Chaldee Paraphrase*, an Aramaic interpretation of the Old Testament, the image of this stellar bird was depicted upon the banners of the tribe of Dan.<sup>[129]</sup>



Also like the Persians, Jews considered vultures to be unclean; in fact, the passages of the Old Testament that list "unclean" birds whose flesh was forbidden as food (Leviticus 11:13-18 and Deuteronomy 14:11-17) are those most often quoted to support the notion that poor views of vultures

among the Jews and their later offshoots, the Christians, were originally Biblical in basis. (Those who quote the Bible to that effect tend to ignore the fact that birds like eagles and falcons are also listed as unclean.) However, it isn't likely that there was much of a threat of Jews voluntarily dining on vultures. Those who wrote the list may not have intended for it to be interpreted literally, as a set of dietary guidelines; rather, the labeling of the birds as "unclean" was meant to distinguish Judaism from other religions that venerated the birds as part and of their polytheistic beliefs, and the stated uncleanness of a given bird was a direct result of that bird's prominence in earlier and contemporary cults and religions, including the pre-Jewish Hebrew cult.<sup>[130]</sup> The Jews may have dubbed vultures "unclean" because they wished to distance themselves, and their faith, from the idolization of the carrion birds that was so widespread in the Near East.

But this unclean business is only a small part of the Hebraic vulture story; if one looks more closely at Jewish literature, a truer picture of the early Jews' relationship with vultures begins to emerge. Although their exaltation of the birds was rather more subtly expressed than that of the ancient Egyptians or the Persians, the Jews presented no exception to the widespread admiration of vultures by Near Eastern peoples. In fact, the greatest collection of Jewish literature, the Old Testament, is thick with exaltation of the birds; but, due to a quirk of biblical translation, many people are entirely unaware of this. The pearl about which this ignorance has formed is the Hebrew word *nesher*, which pops up with some frequency in the Old Testament. It stems from a Semitic root, a verb meaning "to tear apart."<sup>[131]</sup> The *nesher* is often identified with some characteristic of God - especially divine protection, as in Exodus 19:4 ("You have seen what I did to the Egyptians, and how I bore you on *nesher's* wings and brought you to myself"), or divine wrath, as in Jeremiah 48:40 ("For thus says the Lord; Look, he shall swoop down like a *nesher*, and spread his wings against Moab"). *Nesher* is usually translated into English as "eagle," although doubts have been expressed about the accuracy of that translation. Some biblical scholars have claimed that *nesher* refers exclusively to the "eagle" (presumably meaning the Golden Eagle), without providing any kind of evidence to support that assertion; while others have rather reluctantly admitted that, sometimes, it might be better to translate *nesher* into "vulture."

Actually, the evidence overwhelmingly indicates that the Jews used the word *nesher* to unambiguously refer to a vulture: the most common and conspicuous of the Holy Land's very large birds of prey, the Eurasian Griffon. The confusion surrounding the *nesher* should have been laid to rest more than 140 years ago, when Henry Baker Tristram, the then-Canon of the Church of Durham in England, published his studies of the fauna of the Holy Land. Tristram emphatically repudiated identification of the *nesher* with the eagle, and established its correct identification by pointing out that, among other things, the Bible mentioned the baldness of the *nesher* in Micah 1:16: "Make yourself bald and cut off your hair for your pampered children; make yourselves as bald as the *nesher*." (The result of this particular mistranslation is quite comical; "bald as the eagle" just doesn't scan, as more than a few Bible readers have noticed.) Still more particular is the *nesher's* appearance in the Book of Job, which amounts to a brief and quite accurate summary of Griffon behavior:

Is it at your command that the *nesher* mounts up and makes its nest on high? It lives on the rock and makes its home in the fastness of the rocky crag. From there it spies the prey; its eyes see it from far away. Its young ones suck up blood;<sup>[132]</sup> and where the slain are, there it is. (Job 39:27-30)

Aside from the stilted grandeur of the language, this passage wouldn't be all that out of place in a modern birdwatcher's guide under an entry for the Eurasian Griffon.

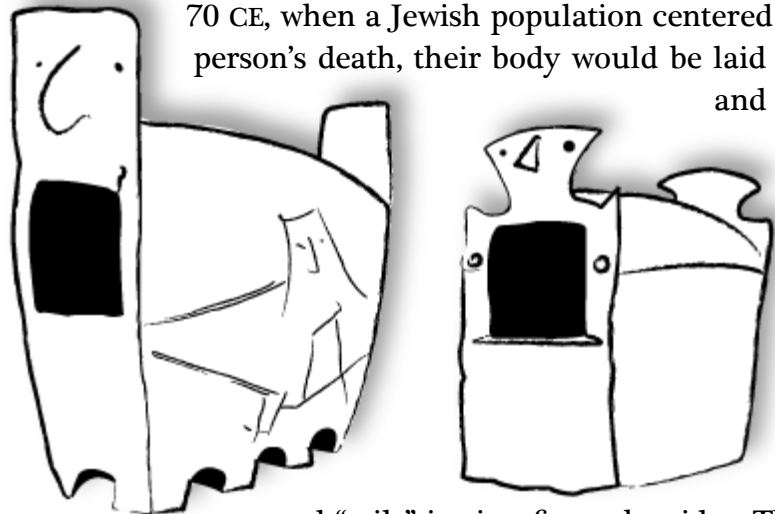
The word *nesher* appears a total of 28 times in the Old Testament.<sup>[133]</sup> If we ignore those passages that identify it only as a large, swift, great-winged bird, then we're still left with a clear description of a *nesher* that, like the Griffon, inhabits the ends of the earth (Deuteronomy 28:49), builds its nest in extremely high places "among the stars" (Obadiah 4), enjoys eating eyeballs (Proverbs 30:17), is thought to be extremely foreboding to the point of signifying the wrath of God (Hosea 8:1); and, most tellingly, is used in food- and gluttony-themed analogies (Deuteronomy 28:49-51 and Proverbs 23:1-5). Tristram thought that the mistaken translation of *nesher* into "eagle" was due in part to modern confusion between the *nesher* and its smaller, tamer, more-apt-to-eat-excrement-and-garbage cousin, the Egyptian Vulture. As he put it, "It is unfortunate that our language has only the one word 'Vulture' for the noble Griffon, and for the despicable, though very useful scavenger, 'Pharaoh's Hen'".<sup>[134]</sup>

His assertion that the *nesher* and the Griffon were one and the same is amply supported by linguistic evidence, as well. The Hebrew *nesher* is virtually identical to the Ugaritic (Akkadian) *nsrm* and the Arabic *nasr*, both of which specifically mean "vulture," and which descend from the same Semitic root. *Nesher* is also markedly similar to the Egyptian word *nrt*, "vulture," and the phonetic value, *nr*, of the griffon ideogram used in Egyptian hieroglyphs.<sup>[135]</sup> Plus, as Tristram noted, "The Griffon is the most striking ornithological feature of Palestine. It is impossible in any part of the country to look up without seeing some of them majestically soaring at an immense height, and their eyries abound in great colonies in all the ravines of the country."<sup>[136]</sup> He wrote in 1865 that, "I do not think that I ever surveyed a landscape without its being enlivened by the circling of a party of Griffons."<sup>[137]</sup> It's been estimated that in the mid-19th century, no fewer than 1,000 pairs of Griffons nested in what is now Israel, which would equate to almost eleven pairs per square mile (just under 28 per square kilometer). The abundance and conspicuousness of the species likely was even more pronounced when the Old Testament was being written and collected, although the Griffon had declined almost to extinction in the Holy Land by the 1950s.<sup>[138]</sup> Finally, it was the Griffon (among other vultures) that was deified and iconized by the earlier and contemporaneous civilizations of the Near East, not any eagle.<sup>[139]</sup> There's no reason to think that the Jews sought to differentiate themselves from their Near Eastern peers by idolizing the smaller and less common eagles instead of vultures; indeed, as an underdog ethnic-religious group often at the mercy of stronger peoples, they may have deliberately chosen the Griffon as a symbol in order to place themselves on a more equal footing with the great powers of the region.

It's interesting that, despite the many years they had spent in bondage among the Egyptians and their vulture goddesses, the Jews had no difficulty in identifying the *nesher* with certain traits of their own unambiguously masculine deity, Yahweh. They may have accomplished this by transferring the *nesher's* perceived feminine attributes to another bird: the Egyptian Vulture, the *raham*. In Hebrew, the root R-M-H from which *raham* derived meant "pity," "compassion," and "womb," as well as "vulture."<sup>[140]</sup> This is remarkably similar to the double meaning of the ancient Egyptian *mt* ("vulture" and "mother"), and is another piece of evidence to suggest that the beliefs of both societies were influenced by the ancient Vulture Cult. To the Jews, it seems that the Egyptian Vulture was feminine and compassionate, and the Eurasian Griffon masculine and godlike; and the symbolic difference that they perceived between the *nesher* and the *raham* was probably not unlike that which would later develop in European culture between the vulture and the eagle.



The ancient Jews were similar to the people of Çatal Höyük in one other respect: they believed that the key to preservation of the dead lay in the bones, not in the flesh. Like the long-gone Çatalians, some Jews practiced a ritual intended to remove the flesh from corpses while preserving the bones. Among the Jews, the practice of defleshing bones and then interring them in ossuaries occurred in two distinct phases. The later and better known phase was in Roman times, from about 30 BCE to 70 CE, when a Jewish population centered on the city of Jerusalem took up the practice. Upon a person's death, their body would be laid out in a cave for a year, allowing natural desiccation



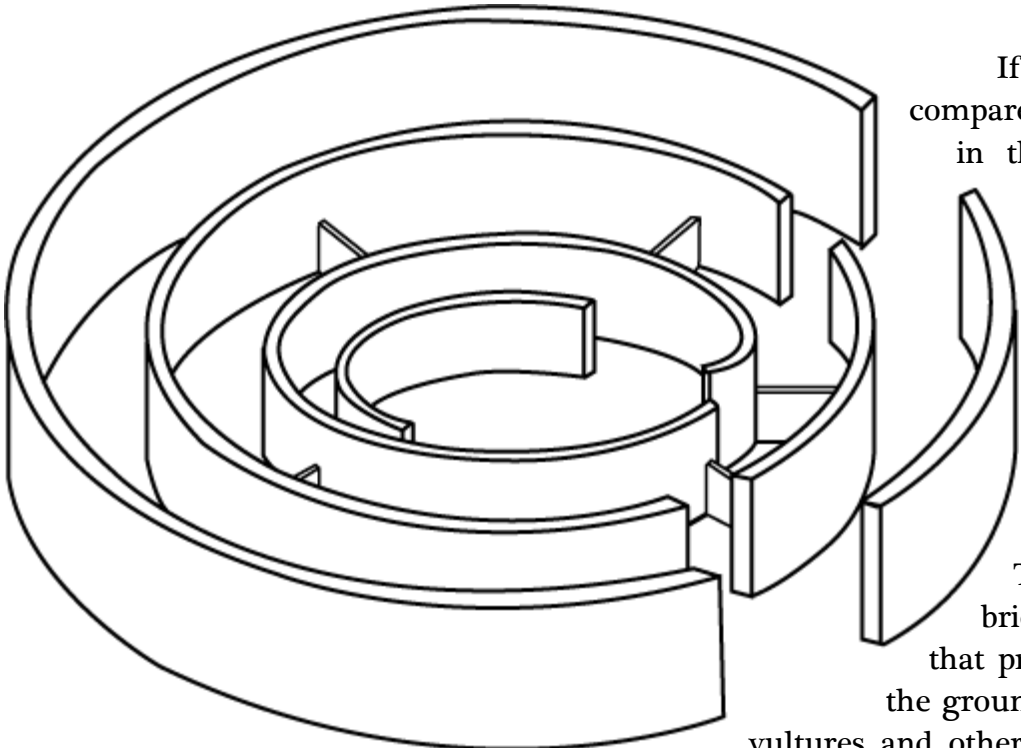
and insects to remove their flesh before their bones were

interred.<sup>[141]</sup> The earlier phase dated from the Chalcolithic period, 4,500 to 3,500 BCE. Archaeological digs thus far have not found any cemeteries or individual burials dating to this period, only ossuaries in which defleshed bones were interred.<sup>[142]</sup> These ossuaries ([left](#)) were clay boxes, carefully crafted to be just large enough to hold a complete disarticulated skeleton. Many of them were made in the shape of birds, with “bills”

and “tails” jutting from the sides. The Israeli Museum in Jerusalem exhibits 13 ossuaries from the Chalcolithic period, between 4,500 and 3,500 BCE; all but one of these boxes has a wedge-shaped, vulturine “tail,” and all but two have a “bill,” with accompanying forward-facing eyes.<sup>[143]</sup> One even older ossuary has not only a “bill” and “tail,” but also a charmingly free-form engraving of a vulture, with wings spread, carved into its side.<sup>[144]</sup>

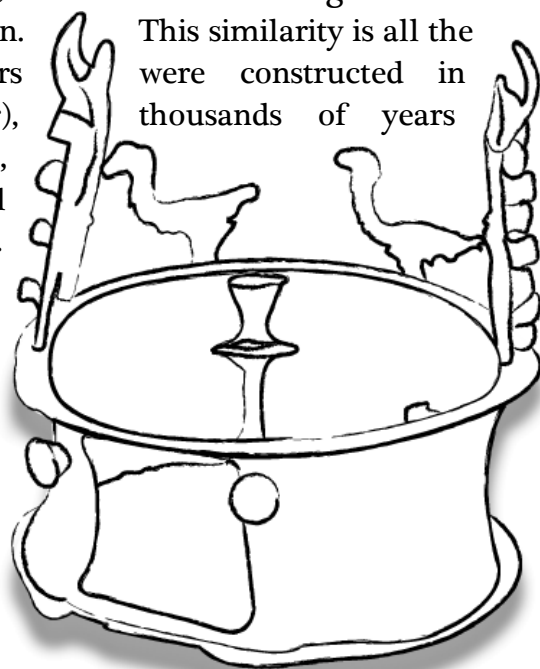
The vulturine form of these ossuaries is suggestive that vultures played some part in the funerary rituals of the people who made them. Nevertheless, the prevailing opinion until recently was that these early Jews, like their Roman-era descendents, preferred that large scavengers took no part in the process of excarnation. However, in a recent article in the *Biblical Archaeology Review*, the archaeologist Rami Arav has offered a new interpretation: the bones interred in the vulture-shaped ossuaries were in fact defleshed by deliberate exposure to vultures.

At the root of Arav's theory is the mysterious archaeological site of Rogem Hiri, in the Golan Heights overlooking the Sea of Galilee. It dates from the Chalcolithic, contemporaneous with the vulturine ossuaries; and though the site was used as a simple tomb late in its history, its mysterious structure suggests that it originally had a very different use. As it exists today, Rogem Hiri consists of four incompletely circular, concentric stone foundations that probably originally supported mud-brick walls – but, oddly, there's no evidence of any roof. Judging from the width of the foundations, the walls were thickest and highest on the perimeter and thinnest and lowest at the center, which means that anyone standing outside of the structure would not be able to see beyond the outermost wall. But someone, or something, perched on that wall would have a clear line of sight to the very middle of the structure – and all that lay there.<sup>[145]</sup>



If Rogem Hiri ([diagram at left](#)) is compared to other contemporary buildings in the Near East, or to later Jewish temples, the function and purpose of this structure appears inexplicable. But a broader search for comparisons reveals an unexpected analogue: the famed *dokhmas* or Towers of Silence built and used by the Zoroastrians of Persia and India to dispose of their dead. Like Rogem Hiri, the Towers consist of sturdy, circular brick walls, built on stone foundations, that present a blank face to onlookers on the ground but are open to the sky, allowing vultures and other birds to view the contents of the

structure and to fly in and out at will. Rogem Hiri was structurally more complex than the Towers, as the latter consist of single walls rather than multiple concentric walls, but otherwise both Rogem Hiri and the Towers were essentially variations upon a single basic design. more remarkable because it's generally believed that the first Towers the 8<sup>th</sup> century CE (though this may be incorrect, as we'll see later), after Rogem Hiri had crumbled and been forgotten. Excarnation sites, like cinemas or sports stadiums, clearly demand functional architecture and so share basic commonalities in design. Contemporary sculptural depictions of Rogem Hiri in metal and pottery (right) show vultures perched on its walls, leaving little doubt that it was used as an exposure site. It's highly unlikely that Rogem Hiri was the first or only structure of its kind in the ancient Near East, though it may have been the most important of its time. There are other possible excarnation sites in what is now Israel, though only further archaeological study can determine their significance.<sup>[146]</sup> It is certain that the practice of excarnation was later abandoned by Jews; by the time the Old Testament was compiled, the practice was considered completely abhorrent, a punishment that was only meted out to the corpses of criminals or despised enemies.<sup>[147]</sup>



This similarity is all the more remarkable because the Towers were constructed in thousands of years

Comparatively little is known about the vulturine views of early Christians, although the few appearances of vultures in the New Testament - notably in a couple of fairly disparaging similes, where Jesus likened them to people who followed false prophets and bogus messiahs by saying "Wherever the corpse is, there the vultures will gather" (Matthew 24:28 and Luke 17:37) - suggest that they weren't exactly enthusiastic admirers of the birds. Both passages used the Greek word *aetos*, "eagle," to signify vultures, which implies that the inability or unwillingness to distinguish between vultures and eagles so often misattributed to the writers of the Old Testament was a reality by the time the New Testament was compiled. This was most likely due to the influence of the Roman

Empire, whose symbolic eagles were just as ubiquitous in the Holy Land as everywhere else that its rule held sway – though the Christians’ notorious dislike of idolatry ensured that they took no part in idolization of any birds, be they vulture or eagle. The early Mesopotamian Christian Jacob of Serugh, whose land was then part of the Persian Empire, claimed that the Persians had been led by the devil to make an “eagle” which they worshipped, probably as a reference to Persia’s venerated Huma.<sup>[148]</sup>

By whatever names they knew the vultures, Christians did freely adopt earlier beliefs about the carrion birds, often modifying them in the process in order to better suit the story of Jesus and his teachings. For example, the old but still widely believed Near Eastern myth that vultures reproduced asexually was dusted off and used to “prove” that virgins could in fact give birth - which provided a persuasive piece of evidence when attempting to convert heathens who might be otherwise be skeptical about the story of the Virgin Mary. Saint Ambrose, who was elected the bishop of Milan in 374, summarized this belief in his allegorical work *Hexameron*:

It is said that vultures 'do not indulge in conjugal embraces' or in any sort of union or nuptial tie. They are said to conceive without contact with the male seed and that without the union of sexes they generate offspring that live to a ripe old age. In fact, it is asserted that they live as long as a hundred years and that by no means does 'the limit of a natural span of life await them.' [5:20:64]

He then confronted those who were willing to believe this, yet refused to accept the tale of Christ’s birth:

What do those people say who usually ridicule our mysteries when they hear that a virgin gave birth to a child, people who consider that parturition is impossible to one who never had any relations with a man? Is that to be thought impossible for the Mother of God which is admitted to be possible in the case of vultures? A bird gives birth without contact with a male. No one has cast any doubt on that. But because Mary, though unwedded, brought forth a child, they raise doubts about her chastity. Do not our observations show that the Lord has provided many precedents in the realm of nature by which to prove the glory of His own Incarnation and assert its veracity? [5:20:65, translated by John J. Savage]

Similarly, the ancient Egyptian fable of vultures feeding their young with their own blood was reinterpreted as an example of the kind of sterling parental sacrifice that Christians should expect from their “father,” God, and should themselves strive for. More tenuously, the fable was also identified with the miracle of transubstantiation, in which Jesus nourishes his followers with his own blood. And the third-century prototype for the later Christian-themed bestiaries of medieval Europe, the *Physiologus*, wrote that early Christians were like the mobile and mysterious vultures because, "The vulture does not have a single dwelling or nest, and we do not have the nest of old idolatry (that is, we used to pursue the worship of idols and of many gods) but faith in the church from which heavenly paternal grace has appeared. Thus, we have been saved by Jesus Christ." (XXXIII) As with their progenitors among the Jews, Christians believed in the doctrine of resurrection of the body. This belief resulted in some chiding among non-believers, as described by Cyril of Jerusalem:

Now this is what the Greeks join the Samaritans in saying against us; "your dead man falls down, decays, and is wholly dissolved into worms, and then the worms die. There is the kind of decay and ruin that is the body's lot! How, after that, does it rise again? . . . Vultures and crows eat the flesh from corpses lying on the ground and then fly off to every point of the compass. Can such a body be reassembled? For it is on the cards that, of the birds that devoured it, one dies in India, another in Persia, and another in the land of the Goths. Other men are burnt to cinders in a fire, and then rain or wind disperses the very ashes. Can their bodies be reassembled?" [translated by William Telfer]

Cyril's reply was that, "To small and feeble man, like you, it is a long way from India to the land of the Goths, from Spain to Persia. But it is no way to God, who holds the whole earth 'in the hollow of his hand.'" <sup>[149]</sup>

Nevertheless, the Christians did their best to ensure that God didn't have to pick up scattered pieces of His children. Not long after the crucifixion of Jesus, the Roman historian Pompeios Trogus noted that among the Parthians who then ruled Persia, the "general mode of sepulchre is rending to pieces by birds or dogs; the bare bones they at last bury in the ground." <sup>[150]</sup> Although they appropriated much of the Vulture Cult, the followers of Jesus shied away from this most spectacular manifestation of it; but, soon enough, they came into contact with Near Easterners who did not. The Byzantine historian Procopius recorded in the sixth century that Cabades, the ruler of the Persian Empire, demanded that the Christian Iberians (who lived in what is now Georgia) adopt the customs of the Persians, especially the Zoroastrian custom of beholding. The Iberians were subjects of the Persians, and had been for centuries; but this was the first time that such a demand had ever been levied upon them; <sup>[151]</sup> and Cabades must have been well aware that he was attempting to force beholding upon people who found the practice abhorrent, if not completely alien. The reason for this abrupt and seemingly arrogant change in Persian policy is quite simple: it happened to be at that time that Zoroastrianism had reached its greatest power and widest influence. This religious ascendancy followed the conquests of the Sassanians, who overthrew the Parthian rulers of Persia in 224 CE, and then embarked on an astonishing record of invasions. Lands as far east as India and as far west as Syria fell to Sassanian rule in a short time. Even greater conquests would come by the early 7th century, when Damascus, Jerusalem, and Egypt were all won for the empire - within the space of six years. During the 6<sup>th</sup> century, the Byzantine historian Agathias described the resurgent Empire's funerary rituals in his *Histories* with typical nationalistic bias:

[F]ollowing their ancestral custom . . . [the corpses are] uncovered and unattended to be devoured by dogs and by such loathsome birds as feed on carrion. . . . Thus the flesh is picked away leaving the bones bare to rot scattered and dismembered on the plains. It is strictly forbidden for them to put their dead into any kind of tomb or coffin or even to cover them over with earth. And if the birds do not swiftly swoop down on a man's body or the dogs do not straightaway come to tear it up they think that he must have been utterly vicious and depraved and that his soul has become a sink of iniquity reserved as the exclusive haunt of the foul fiend. In that case his relations mourn still more bitterly for him since they consider him to be completely dead and to have no share in a better hereafter. But if a man is devoured on the instant then they bless him for his good fortune and they regard his soul with awe and wonder, considering it to be the most virtuous and godlike and destined to ascend to the place of bliss. [II:22-23, translated by Joseph D. Frendo]

At this time, the temptation for Near Easterners to start hauling stiff's off to the nearest vulture-inhabited hill must have been strong indeed; for who wouldn't wish to curry favor with the seemingly invincible Empire? But, due to the Persians' general if uneven tolerance of other religions within their successive empires, Zoroastrianism and its beholding ceremonies never gained many adherents outside of Persia. One wonders how the history of funereal ritual in the greater world might have played out if more rulers of such a powerful and pivotally located multicultural empire had adopted Cabades' forceful approach in encouraging their subjects to adopt their practices.

Nevertheless, the Sassanians' conquests would prove to be the high water mark of the Empire - and of its official funerary ritual. Not long afterwards, warriors and missionaries claiming allegiance to the newest faith of the region swept from Arabia into Persia, defeating its armies in several major



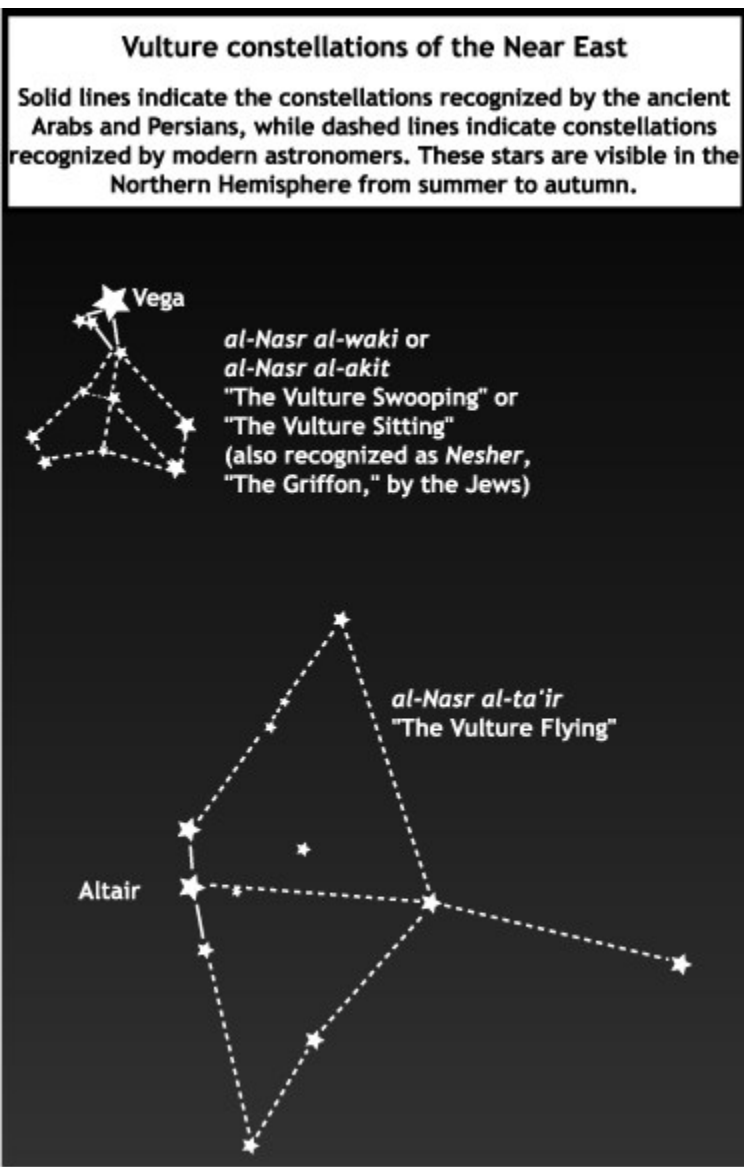
battles. Already weakened by war with the Byzantine Empire, the Sassanian Empire fell to the forces of Islam in 651, and Zoroastrianism abruptly became endangered in the land where Zarathustra was born.

The Arabs among whom Islam arose had their own history with vultures, and respected the birds no less than did the Persians. In the time before Islam united many of them, the Arabs were a largely tribal and nomadic people. Their beliefs were generally animistic; most Arab gods were forces of nature in one form or another, and among them was Nasr, the vulture deity. During the lifetime of Muhammad, the prophet and founder of Islam, Nasr still attracted enough adherents to merit a passing mention in the holy book of the Quran, in a passage (71:13) where the pagan believers exhort each other to resist Noah's urges to abandon their gods for Allah. But along with the other Arabic pagan beliefs, the cult of Nasr was obliterated by Islam in the seventh century, so completely that almost nothing is known about this vulture god of the deserts.

Which isn't to say that there aren't still a few scraps of information about it. Nasr was supposedly the favorite idol of the Himyarites, who lived in central Arabia, and was well known in southern Arabia, along with a variety of other zoomorphic gods.<sup>[149]</sup> The temple of Nasr where the idol of the god was worshipped is thought to have been located in southern Arabia, somewhere in present-day Yemen, although its exact location is uncertain. Nasr may also have had worshippers in the Mosul area of Mesopotamia (present-day northern Iraq), where references to such a deity are found in pre-Islamic literature.<sup>[150]</sup> Further evidence is found in both the Talmud and the Syriac *Doctrine of Addai* (the latter dating from the 4th century CE), both of which mention an Arabian god named "Neshra." Neshra is the Aramaic form of *nasr*.<sup>[151]</sup> During the period when the Romans ruled part of Arabia, the

Aramaicans of the province worshipped this god, and their belief survived in certain proper names, like the Syriac *Neshryabh*, "Neshr has given." The Sabians, an Arabic Gnostic (half-pagan, half-Christian) sect, also had a god named Nasr<sup>[152]</sup> - and, considering the praises sung of the *nesher* in the Old Testament, and the common origin of the Arabs and Hebrews, it is probable that some of the pre-Jewish Hebrews also believed in the vulture deity. (This is why the Old Testament listed the *nesher* as an unclean bird.)

In resource-poor Arabia, visual embodiments of the vulture god were less often carved, painted, or sculpted than envisioned in the stars. The constellations that the Arabs conceived of were different from those of most other cultures, in that living things were thought to be represented by single stars, rather than by recognizable groupings of stars like the human shape of Orion or the raised tail of Scorpius.<sup>[153]</sup> Interestingly, two of the few exceptions to this rule are found in the vulture constellations. Among the star groupings recognized by medieval Arab astronomers was *al-Nasr al-ta'ir*, "the Vulture Flying," which lay in the group of stars known today as Aquilae, the Eagle. *Al-Nasr al-waki*, "the Vulture



Swooping,” or, sometimes, *al-Nasr al-akit*, “the Vulture Sitting,” comprised a portion of today’s constellation Lyrae. The conception of the Vulture Flying likely owed some influence to the culture of Persia, for the Persians also recognized the three stars of the Vulture Flying as a vulture.<sup>[154]</sup> The Vulture Swooping was visualized with half-closed wings, the posture that a vulture would display when it swooped from the sky down to a carcass. The Vulture Flying has outspread wings; it soars rather than swoops.<sup>[155]</sup> Although neither vulture constellation is recognized by astronomical authorities today,<sup>[156]</sup> their names live on (albeit in a shortened and bastardized form) in the designations of the brightest of their respective stars, the alphas. Alpha Aquilae, the 11th brightest star in the sky, is named Altair, and Alpha Lyra, the 4th brightest, is named Vega, a corruption of *waki*.

Common as vultures were in the Near East, and conspicuous as they were among the relatively few large creatures inhabiting the bleak mountains and desert sands, their behavior and images percolated into most every area of Arab culture, particularly its speech. Arabic probably has more names for each species of vulture than any other language – particularly for the Egyptian Vulture, which has acquired scores (if not hundreds) of local names in the Near East. Modern Arabic alone has at least 11 different monikers for the white, yellow, and black bird, as well as specific terms for the male of the species and even for the young in the nest.<sup>[157]</sup> As the vultures were such an everyday presence among the Arabs, it’s no surprise that many different medicinal properties were attributed to the birds. The list of cures and preventatives believed to be afforded by vulture parts is astonishing, and could fill a chapter in itself. Some, like the belief that a vulture’s heart carried around in a bag ensured its bearer protection against ferocious beasts, were common to much of Asia and eastern Europe; others, such as the supposition that melted vulture fat poured into the ear (after suitable cooling) guards against deafness, appear to be peculiar to this region. Among the strangest of the latter is the belief that the humerus of a vulture’s right wing, and only of the right wing, could be burned and the ash dissolved in drink to make a love potion. It was also said that a vulture’s radius and ulna could be boiled until soft, and then tossed into a vessel of water. One bone would sink (in theory), but the other would float. This buoyant bone could then be rubbed on a person’s shoulders, making them pliable to any kind of request.<sup>[158]</sup> Interestingly enough, a number of the prescribed uses of vulture parts pertained to love. The nomadic Bedouin of the Sinai Peninsula believed that if the body of an Egyptian Vulture “tinted by the hand of the Prophet’s [Muhammad’s] daughter” was buried for forty days, then dug up and boiled until all of the flesh had dissolved, a single bone would stick up among the others, signifying that it held great power. All that was required to win the unconditional affection of a given girl or woman, it was said, was to rub the bone on her clothing. [Palmer 1872, 88]

Most of the Arabic uses of vulture parts pertain to protection of some kind or another, befitting a bird whose symbolic wings offered shelter to so many people. A vulture’s eye, detached and worn on an arm, was considered a talisman against which evil spirits had no defense; more importantly, anyone who wore it could approach their ruler with no fear in their heart. A servant carrying any bone of a large vulture was ensured protection against their master’s anger; and the upper mandible of a vulture’s bill, enfolded in a handkerchief and worn around the neck, guarded against the attack of any flying creature. The tendons of a vulture’s feet served as talismans against gout in the legs - with the caveat that those of the right foot be used only for the right leg, and those of the left foot for the left leg. And, appropriately, a vulture’s cranium contained in an amulet was a sure-fire way to dispel any headache. Melted vulture fat could be mixed with honey and administered orally to guarantee against any ocular problems. The consumption of vulture flesh was, of course, forbidden under Islamic law; nevertheless, it could be mixed with herbs, salt, and honey as an ointment for snake and insect bites. And the blood of a vulture could be drunk in order to dispel a recurring fever.<sup>[158]</sup> Such beliefs could

certainly be detrimental to the birds; many years ago, it was reported that the Griffon colony on Mr. Carmel in northern Palestine was suffering a steady decline in nesting birds, due to incessant killing of the vultures for their fat.<sup>[159]</sup>

Less potentially harmful was a belief that when the female vulture was ready to lay an egg, her mate would fly off to search for a *hadjar al-nasr*, a vulture's stone. This precious rock was to be found only on a select few mountains, and the male vulture sometimes had to fly as far as the islands of the East Indies in order to find one. Once it was located, he would take it back to his eyrie and place the stone in the nest, beside his mate. She could then lay her egg with a minimum of discomfort. Other cultures, like that of the ancient Greeks, believed that such a stone would prevent miscarriage in pregnant women, and so vulture stones were highly prized among them; it seems that this was probably also true among the Arabs. Tellingly, vulture's stones were also known as *hadjar al-talk*, "stones of confinement." This term referred to the rocks known to geologists as aetites, hollow chunks of iron which contain small, loose nuclei; when the stone is shaken, the nucleus rattles around audibly. It's easy to imagine how such a stone might be likened to a vulture egg, hollow and containing an embryo.<sup>[160]</sup> Vultures' feathers were also highly prized among the Arabs, for it was believed that a single one of them placed upon a woman who was going into labor ensured a quick and safe delivery of a healthy infant<sup>[161]</sup> - echoes of Rudabeh's labor in the *Shahnameh*.

Most peculiar of all were the uses ordained by Arabic folklore for the eggs themselves. Humanity's innate creativity is nowhere more prominently displayed than in the profession of dreaming up aphrodisiacs, and there is no shortage of bizarre marital aids (of varying effectiveness) to choose from in any culture; but the Arab prescription of a well-beaten vulture egg smeared on the genitalia must take top honors for imaginativeness among all of them. Grotesque as it may seem, this prescription for sexual prowess does make a certain sort of sense. To the Arabs, the difficulty of securing a vulture's eggs was proverbial - literally, as unattainable things were said to be "more inaccessible than the eggs of a vulture," and priceless possessions were considered "more precious than the eggs of a vulture."<sup>[162]</sup> Thus anyone who could successfully secure a vulture's egg would undoubtedly be endowed with great skill, toughness, and determination (if not common sense), and would surely be a worthy lover.

The near-unattainability of vulture eggs was due in no small part to the great ages of the birds; for who could hope to outwit a vulture that had already experienced centuries of foolish attempts upon its eggs? It was widely believed throughout the Near East that vultures lived to incredibly ancient ages, and the septenarian bird encountered by Solomon at the abandoned palace was by no means the oldest reported specimen. There is a sound basis for this belief, aside from the fact that vultures do often live for a long time. Griffons, the commonest vultures of the region, breed in cliffside colonies. Not just any cliff will do for their purposes; it must have favorable winds, ledges or potholes where the vultures can place their nests, and it must not be too close to a large concentration of people. It comes as no surprise, then, that griffons are unwilling to give up their colonies, unless natural or man-made disasters force them to. Some colonies have probably been in use without interruption for thousands of years, with newly mature vultures replacing the older birds as they succumb to mortality; and since there was no way for a human observer to tell one griffon from another in the days before bird-ringing, it must truly have seemed that the birds never died. They were always there, year after year, vaulting from their cliffs at morning as the sun warmed the ground, disappearing into the sky during the day, and returning from their mysterious errands as the day wound down, swooping back to the same cliffs where they had always perched. This is why, when he was offered a chance by the gods to live for seven generations of any creature, the ancient Arab

sage Lukman chose to live through seven generations of vultures.<sup>[163]</sup> When his wish was granted, he became, to all human intents and purposes, immortal. Lukman reared seven vultures in succession to one another, and not one of them lived for less than 80 years. The last of these methuselean birds was named Lubad; when Lubad died, so too did Lukman shuffle off his mortal coil. A long coil it was; Lukman was then 1,000 years old. Peculiarly, it isn't Lukman who is remembered in Arabic adages about the accomplishments of old age, but the last of his vultures. Arabs say that an ancient person is "much older than Lubad"; or, when contemplating the vital tenacity of someone who still clings to a seemingly endless life, "Lubad has not done with living."<sup>[164]</sup>

As everywhere else where the birds live, in the Near East the baldness of vultures was often interpreted as a sign of old age; and there were many attempts to explain how vultures first became bald. Some Arabs and their fellow Muslim Near Easterners, the Turks, did this by way of tales involving the Emperor Solomon. In Muslim folklore, this *humayun* figure is really an amalgam of two very different men: the Jewish King Solomon of biblical times, and the Ottoman Emperor Suleiman, who ruled his empire in the 16th century. Possibly because of the similarity of their names, in the tales they have been merged into one figure, who was an Emperor and good Muslim like Suleiman, and who possessed the reputed supernatural abilities of Solomon.<sup>[165]</sup> The Arabs of Syria tell that during Solomon's lifetime, all of the birds would come to pray with him each morning. The prayers could not begin until all of the birds had gathered together; but Solomon noticed that the eagle was always the last bird to arrive. One day, the emperor sent for the eagle; when it arrived, Solomon asked why it wasn't setting a better example by arriving early instead of late. Reluctantly, the eagle confessed that he had an ancient father, so old that all of his feathers had long since dropped away and he had become entirely helpless. As the other birds flew past on their way to prayers, they would peck at the helpless old bird in scorn; and so his son resolved not to leave him for prayers until the last of the other birds had passed. That was why the eagle was always the last to arrive.

Touched by the eagle's devotion to his father, Solomon praised him, and asked that he bring his father so that the emperor could speak to him. When the featherless old bird arrived, Solomon rested his hands on its bare neck and blessed him, promising him eternal youth. The old bird would now always have feathers, Solomon said, and be forever young. The eagle's father, the vulture, has been that way ever since, living for centuries and renewing his feathers in every year's molt; but, in memory of the touch of Solomon, his head and neck are covered only in down.<sup>[166]</sup>

Another story also traces the vultures' baldness to Solomon's actions; but now because of anger, not compassion. On one summer day, the melancholy desert sun beat down on Solomon's head so fiercely that he couldn't stand its rays for another moment. He called out to the vultures to fly between him and the sun, in order to shade him, as was his royal right. But the vultures paid him no heed; they merely flew away. Sunburnt and enraged, Solomon cursed the birds, and decreed that the feathers covering their heads and necks would fall off so that *they* would forever feel the heat of the sun; and so they did.<sup>[167]</sup>

Perhaps the vultures were a bit full of themselves that day. They had good reason to be; by dint of its tremendous longevity, massive size, and dominance over other birds, the Arabs had long dubbed the vulture *sayyid al-tayr*, "lord of the birds." Indeed, the vulture's lordly status was confirmed by no less an authority than the angel Gabriel, who had informed the prophet Muhammad during one of his visions that, "Every thing requires a lord; for humanity it is Adam, for his descendents it is you . . . for birds it is the vulture."<sup>[168]</sup> One begins to suspect that the black "eagle" said to have been used by Muhammad as one of his standards<sup>[169]</sup> may actually have been a rather different bird, more ancient in its veneration and more appropriate to Near Eastern traditions. And yet, there was one crucial sector



of Muslim belief in which vultures were most unwelcome: Muslims absolutely *abhorred* the idea of vultures, or any other animals, eating the bodies of humans, and especially loathed any funeral practice that involved scavengers. Islam frowns upon any method of corpse disposal except for a simple burial, performed as quickly after death as possible, because Islamic metaphysics hold that, even after death, the human body can still feel pain. This makes any kind of mutilation of a corpse, whether by man, beast, or bird, utterly repugnant and to be avoided at all costs. Whether they were welcome to it or not, vultures feasted on the flesh of followers of the Near East's newest religion just as they had feasted on that of all earlier believers. (Say what you will about the birds, but you can't accuse them of falling prey to the curse of religious bigotry that has claimed so many other Near Easterners.) It was once possible to see massed swarms of vultures trailing the funeral caravans of Shi'a Muslims, as they carried their dead to the traditional burial grounds at Karbala, in present-day Iraq.<sup>[170]</sup> One wonders if such sights influenced the persecution of Zoroastrians, and mockery of and disdain for their beholding rituals, which was to unfold in Muslim-ruled Persia.

After the fall of the Sassanian Empire in 651, some Zoroastrians converted to Islam voluntarily, seeing in the new religion many of the same beliefs that they already held. By late Sassanian times, many of the Magi who dictated Zoroastrian dogma had become exclusionary and elitist, jealously guarding their power and privileges in collusion with the wealthy. Needless to say, Persians who were displeased with this situation were often willing to embrace Islam.<sup>[171]</sup> Others were forcibly converted, but many Zoroastrians clung to the teachings of Zarathustra, even as they gradually came to be outnumbered by Muslims in their own land. Early Muslims grouped believers of other religions into two categories: people of the book, who were considered fellow worshippers of the one true god, Allah; and infidels, who were to be offered only the choice of conversion or death by Muslim rulers. The people of the book originally included only Jews and Christians; but the sheer number of Zoroastrians in Persia forced their placement in that category as well. While the Zoroastrians then had the option of paying tribute to Muslim rulers, instead of converting or being summarily executed, they were still burdened with many restrictions. Among them was the admonition that their dead must be interred (that is, disposed of) secretly and separately from the dead of the Muslims.<sup>[172]</sup> It was no great difficulty for the Zoroastrians to inter their dead *separately*; rather, it was the requirement of secrecy that led to problems, and ultimately to the end of the practice of exposure in the Near East.

In order to hide the more practical and grisly details of their beholdings from prying and unsympathetic eyes, Zoroastrians hit upon the idea of holding them inside buildings, with walls high enough to prevent people from looking in; but without roofs, allowing the vultures to freely fly in and out. These buildings were the famed *dokhmas*, later to become known as Towers of Silence. The *dokhmas* would turn out to be architecturally and functionally very similar to Rogem Hiri, the archaeological site in Israel that's now believed to have been constructed and used for the purpose of defleshing bodies by exposing them to vultures. However, Rogem Hiri was abandoned and apparently forgotten in the mid-third millennium BCE, at least half a millennium before the birth of Zoroaster, which rules out the possibility that the Zoroastrians copied its design.

Historians in and out of the Persian area generally believe that the first *dokhmas* were built early in the period of Islamic rule, in the 8th century CE; but Zoroastrian tradition suggests otherwise. A. V. Williams Jackson, an American professor of Indo-Persian languages who traveled widely in Persia during the first decade of the 20th century, spoke to a number of Zoroastrians living in the province of Yazd during his visit. They told him of their tradition, apparently passed down from the long-ago rule of the Sassanian kings, that when Persia was ruled by Zoroastrians each believer in the Vendidad constructed their own *dokhma*: a *dokhma-i tan bah tan*, "*dokhma* for a single body." Of

course, there could be some confusion here between the original meaning of *dokhma*, that of “grave” or “tomb,” and the later application of the word to the tower-like structures. In either case, this tradition would explain why *dokhmas* seem to be very numerous in the society described by the Vendidad.<sup>[173]</sup> These small *dokhmas* may have evolved from the stone cairns that were constructed in some parts of South Asia as memorials, and to hold bone fragments after bodies had been partially cremated or defleshed by vultures. Such cairns, known as *chors*, were once built in northern India and adjacent areas, and consisted of piles of plain, unworked stones about 6 to 10 feet (1.8-3.1 m) high. Oral tradition holds that the *chors* were erected singly to commemorate isolated deaths, or in clusters to recall battles.<sup>[174]</sup> The first of the large *dokhmas*, the true antecedents of the Towers of Silence, were known as *dokhma-i lashkari*, “*dokhma* for soldiers,” that were specifically constructed to accept the bodies of Zoroastrian soldiers killed in battle.<sup>[175]</sup> A massive increase in the mortality of the Sassanian Empire’s soldiers must have necessitated the construction of these towers, and we need look no further than the Muslim assaults on the Empire in the 7th century to find the most likely culprits for such slaughter. During these attacks, the Persians suffered hundreds of thousands of casualties; including 40,000 dead in just one battle, Qadisiyyah, in 637.<sup>[176]</sup>

These large *dokhmas* began to be used by all Zoroastrians after their subjugation at the hands of the invaders, in a modified form of beholding known as *dokhmenashini*. The earliest known literary allusion to a *dokhma* is found in a letter dated to 830, and its context indicates that there was nothing especially novel or noteworthy about the towers by that time;<sup>[177]</sup> however, they were quite crude by modern Zoroastrian standards. Most consisted of nothing more than a circular stone or brick wall with a high parapet, enclosing a stone platform upon which the corpses were placed. To carry a body into one of these *dokhmas*, the corpse-bearers had to climb into it with a ladder, as no stairs were provided. Some communities opted for even simpler designs, and merely encircled the hilltops upon which beholdings were traditionally held with mud-brick walls.<sup>[178]</sup> Even the simplest of the towers served their purpose; they shielded the dead from the sight of non-Zoroastrians, and prevented corpses from being violated by unbelievers - or at least made such violation more difficult. The Towers and their attendant vultures must have been a common sight in the regions of Persia still heavily populated by Zoroastrians; many of them, crumbling and long since disused, still dot Iran's landscape today.

As grand a gesture towards religious accommodation as the *dokhmas* were, they weren't enough to bolster the fortunes of the Persian Zoroastrians. Sometimes, the towers counterproductively served as foci for Muslim harassment of the Zoroastrians. In the tenth century, one wealthy Zoroastrian expended much money and time to build a *dokhma* on a hilltop; but, on the day it was finished, a Muslim official climbed the hill and called for prayers from atop its walls. The local Muslim community used this action as a pretext to claim the building for itself, although it had no other practical use for the structure.<sup>[179]</sup> Freely exposing human bodies in areas frequented by people who no longer understood the practice presented its own problems. In his work *The Book of God*, the medieval Persian writer Farid Ud-Din Attar told the story of a drunken young Muslim prince who, on his wedding night, mistook a *dokhma* for his bride’s castle, climbed into the structure, and engaged in necrophilia with a woman’s corpse that he found there.<sup>[180]</sup> Intolerance and persecution of the ever-dwindling numbers of Zoroastrians (who did periodically revolt against Muslim rule) steadily increased, until, in the 10th century, most of the devout Zoroastrians that remained in Persia decided that they must seek a new home if their faith was to survive. Thus, they set out on an epic journey to the east, seeking out a new land with more tolerant rulers. Over a period of decades they crossed land

and sea to India, ultimately settling in Gujarat on the subcontinent's western coast. (And we'll return to that story [in the next chapter](#).)

Those few Zoroastrians who remained in Persia, which came to be known as Iran, had little power in a now overwhelmingly Muslim society, but they managed to discretely continue with their rituals for centuries.<sup>[181]</sup> This state of affairs lasted until the 1920s, by which time there were fewer than 20,000 avowed Zoroastrians in Iran, and the only Iranian *dokhmas* still in use were those in the capital city of Tehran, the southeastern province of Kerman, and the central desert province of Yazd. In that decade, the Iranian Zoroastrian community began to shy away from the practice of beholding, for three reasons. First, a medical school had been established in Tehran, and, in lieu of any Muslim corpses to study from, the school's medical technicians frequently climbed into *dokhmas* in the dead of night and stole bodies from them to use in their classes, causing no end of distress to the Zoroastrian community. Second, the sprawling towns of Iran were beginning to surround *dokhmas* that had been isolated and secure from unwanted onlookers when they were built centuries earlier, making the funerals that were held there crowded and rather awkward. Since none of these *dokhmas* had been provided with surrounding trees for vultures to perch in, it is likely that the birds were also shying away from them, except for the urbane Egyptian Vultures. Third, and most importantly, the more progressive Zoroastrians had come to look upon the beholding rituals as relics of an earlier time; relics which were now obsolete and unnecessary. These reformers pointed out that long ago, before *dokhmas* and before the practice of beholding, Zoroastrians had gotten by merely by placing their dead in the ground while carefully observing the strictures against pollution. In 20<sup>th</sup>-century Iran, that practice was a lot more practical than continuing to use *dokhmas*. As a result of this debate, the Tehran *dokhma* was replaced with a cemetery, specially tailored to Zoroastrian beliefs by lining the graves with concrete to prevent the surrounding earth from being polluted. The *dokhmas* in Kerman and Yazd continued to be used sporadically, but the cemeteries that were built nearby were increasingly preferred alternatives; and, sometime in the 1970s, the very last Iranian beholding ritual was carried out.<sup>[182]</sup> For the first time in many thousands of years, the vultures of the Near East were no longer welcome at funerals; the compassionate purifiers were now without anything to purify.

The passing of this venerable tradition was little noted by anyone save the Iranian Zoroastrians themselves; and, perhaps, by the vultures that had faithfully served their purposes for so long. The decline of the practice of exposure in the Near East happened so gradually that it's doubtful whether its fade from the living world had any substantive effect on the vultures of the region; it seems unlikely that any vultures starved just because the beholdings had ceased. And yet, the demise of the ritual was important for another reason; a reason best explained by one of the Turkish stories of Emperor Solomon.

This tale begins near the end of Solomon's long and rich life. When the time had come for Solomon to leave this world, Allah sent Azrail, the angel of death, to take the life of the Emperor who had lived for half a millennium. When Solomon learned why Azrail had come, he didn't try to dissuade Azrail from his task, but instead asked the angel how he could know whether his realm would have a good or bad ruler after his death. Surely Azrail could understand that he didn't want to leave his throne without knowing how things would be after he died. Azrail reported this to Allah, who granted Solomon forty more days of life - with the stipulation that he must travel around the world, and find out what had happened in the past, before he decided that he wished to live any longer.

Upon hearing this, Solomon brought his advisory committee of wise men together, and asked them what one of Earth's creatures had lived longer than any other. The answer, of course, was the

vulture. And so Solomon went traveling to find a vulture to speak to. After a time the Emperor found a very old vulture, and asked the bird to tell him what had happened in the past. But, at a mere 1,500 years of age, the vulture didn't think himself qualified to tell Solomon what he needed to know; the vulture directed Solomon to his brother, who lived on the other side of the mountain and who was 2,000 years old. Solomon repeated his request to this vulture; but the vulture demurred, claiming that he had a vulturine friend living along a river who had seen two thousand, five hundred years.

At long last, Solomon found this ancient bird and explained to him what he needed to know, asking the vulture to tell him of all its experiences. After mulling over this request, the vulture told Solomon of a terrible winter, long ago, during which he had almost starved to death. One day, weak from hunger, he had landed on the golden minaret of a mosque. Not until after he had perched there did he notice that there was a religious service in progress, and that the mosque was full of men praying, with the old and white-bearded men in the front row, the middle-aged black-bearded men in the middle, and the young, clean-shaven men at the rear. When the service concluded, the congregation noticed the odd apparition of a starving vulture perched on the minaret of their mosque - and one man spoke up, saying that the bird looked hungry. Heeding the venerable Near Eastern custom that any bird which took refuge in a place of worship should be treated kindly, the congregation then killed an ox and gave it to the vulture, who ate it and flew away happily.

A century later there was another very harsh winter. The vulture flew to a strange country seeking food; but found none, and perched on the silver minaret of a mosque. Again there was a congregation inside; but this time, the black-bearded men were at the front, with the old men in the middle and the young men at the rear. The men noticed the vulture, and saw that it was hungry. They killed a sheep for him, and he ate it, without enthusiasm, and flew off.

After another hundred years there was one more long and hard winter. The hungry vulture flew many miles looking for a minaret of gold or silver, but found only one of bronze. He perched there, and watched another service, with young men in the front row, black-bearded men in the middle, and the venerable white-beards shunted to the back. When the service was over, the congregation saw the starving vulture - and excitedly told each other to rush home and get their guns, so that they might shoot the hapless bird sitting on their minaret. Everyone rushed off, and the vulture flew away, just in time to save his life.

The moral of the story, according to the vulture, was that the world did not get any better from year to year; as time went by, mosques were built more cheaply, young men accorded less respect to their elders, and people in general became less kind towards fellow beings in need. In light of all of this, there was no reason for Solomon to mourn his impending doom; for after he died, the world would assuredly be a worse place than when he had lived. The vulture told Solomon to go back to his own country, and accept the will of Allah without any regrets.<sup>[183]</sup>

From a vulturine point of view, the theme of worldly decline depicted in this Near Eastern story has an especial resonance; for the last of the Zoroastrian beholdings held in the region also marked the last gasp of the Vulture Cult, which had given so much to the world, as a system of living belief. For all of its majesty, Çatal Höyük and the vultures emblazoned on its ancient walls are but curiosities today; and the vultures' role in rebirth and motherhood has been all but forgotten. All of the vulture gods and goddesses, from Nekhbet to Nasr, are dead now, without any believers; even the biblical identification of Yahweh with the Griffon has now been almost entirely subsumed beneath mistranslation fuelled by cultural ignorance. The abandoned *dokhmas* scattered throughout the mountains, deserts, and hills of Iran, where the vultures once purified the world of the pollution of the dead, squat silently as monuments of forgotten times; much like the vulture hieroglyphs of Egypt,



meaningless to all but to the specialists who have devoted their lives to the study of the odd little images.

And yet, the Vulture Cult may have one final message for us, a simple statement that could be an admonition, a threat, or a portent for the future: With death, inevitably, comes life. Take heed; for all the faiths that have vanished, for all the empires that have crumbled, the vultures of the Near East are still flying.

# Chapter 4

## A Scavenger's Shangri-La: The Vulturine Far East

"I am the king of beasts, you are the chief of birds: our nobility and our power are equal," said the Lion.

Replied the Vulture; "I am simply dying of hunger: What is the equality or difference of rank to me?"

-traditional Indian fable of "The Lion and The Vulture," as told by Evelyn Cesaresco

Vultures would congregate and tear these corpses to pieces, sometimes carrying off tit-bits which were dropped in private gardens. It was no uncommon shock to find the unashamed odds and ends of Mr Readymoney Bhoy outside one's dining-room.

-Richard Meinertzhagen, reminiscing about Parsi beholding rituals in *Pirates and Predators*

The people of East Pakistan slept soundly on the night of November 12, 1970. Inhabiting a nation whose land seldom rises far above sea level, the East Pakistanis had good reason to fear the cyclones that sometimes roared out of the Bay of Bengal, lashing their country with tornado-force winds and high waves. But when one such cyclone swept towards East Pakistan less than a month earlier, predictions of widespread death and destruction had frightened millions into desperate evacuation of their homes; and all for naught. The cyclone had turned out to be small and comparatively benign, causing only minor damage and no deaths. And so, the Pakistani government chose to ignore warnings from a weather satellite that another cyclone was headed straight for the same area; it would probably be just another false alarm.

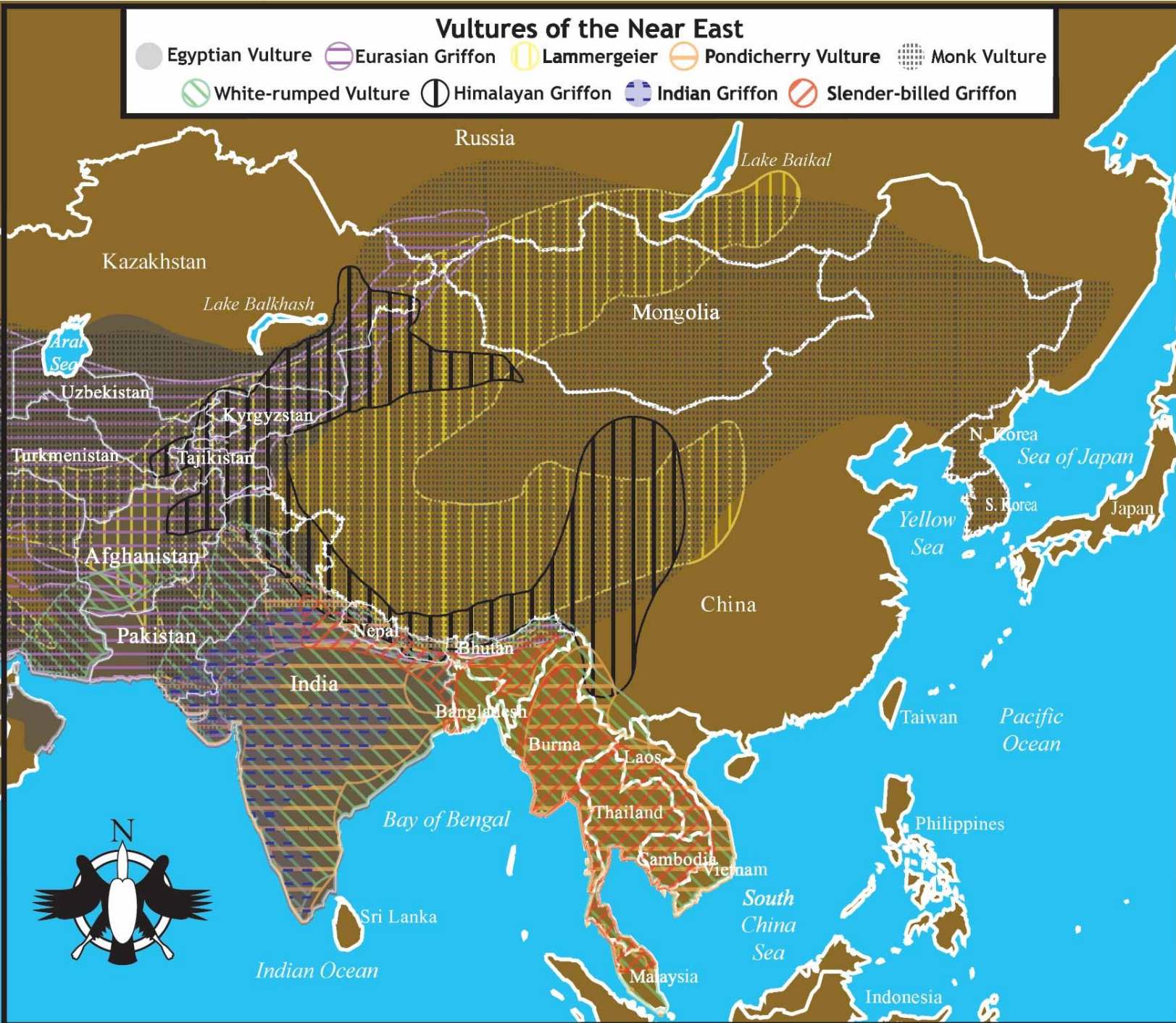
As it turned out, it wasn't. In the middle of the night, wind-whipped waves at least 20 (6.1 m) and possibly 50 feet (15.3 m) high smashed into the coast, pounding buildings into rubble and sweeping their inhabitants out to sea. Minutes later, the cyclone fell upon the land with 150-mile (242 km) per hour winds, destroying most of what the waves had missed - and felling power and telephone lines, ensuring that the rest of the world would remain oblivious of East Pakistan's fate, and unable to help, for days.

After the cyclone moved on, thousands upon thousands of corpses lay along the coast. Rice paddies turned red with blood; each incoming tide deposited bloated bodies of humans and animals upon the beaches. Diseases like cholera spread rapidly among the survivors, adding to a death toll that would grow to between 300,000 and half a million; making this storm, in human terms, the worst natural disaster of the 20th century. The political fallout over the Pakistani government's lackluster efforts to help the survivors would be a prominent factor in East Pakistan's decision, a few years later, to break away from West Pakistan and form the independent nation of Bangladesh.

And the vultures of East Pakistan? They had seen this sort of thing before, and knew just what to do. They ate well for the rest of the year.<sup>[1]</sup>

To most people, this is the sort of image that comes to mind when the words "Asia" and "vulture" are mentioned together; some sort of blood-soaked human disaster with sinister-looking birds greedily surveying the carnage. It is a logical enough association; after all, the portion of Asia east of the Aral Sea and south of Lake Baikal (known as the "Far East" from here on) has been the

most heavily populated area on Earth for thousands of years. Today, it holds almost half of the world's people, and thus has a greater potential for human catastrophe than any other region. Natural disasters resulting in enormous mortality are all too common in the Far East, as the depressing record of the 21st century thus far amply attests. This is nothing new; ancient Chinese records speak of floods killing hundreds of thousands along the Yellow and Yangtze Rivers, and of famines that starved millions; cyclones like that described above have ravaged the coasts and islands of the Far East countless times. Disasters with human culprits are just as common, and no less devastating; many people have never even heard of the Taiping Rebellion in China, but that mid-19th century conflict was the most destructive civil war in history. It resulted in an estimated 20 to 40 million deaths, and it, too, was attended by vultures.





With nine different species, the variety of vultures found in the Far East is second only to that of sub-Saharan Africa; and, until recently, the Far East harbored more individual vultures than Africa, despite its much smaller area. This thriving vulture population has often depended on the human population for food, and not just at second-hand; nowhere else in the world, not even in the Near East, has human flesh been such a consistently integral part of the vulturine diet. Yet vultures are widely respected and sometimes worshipped in the Far East, and some people of the region have even chosen to give up their flesh to the birds voluntarily, in funerary rituals that dispose the dead by feeding them to vultures. A few of the region's cultures still use such rituals to this day, recalling a time when it was the lot of every fallen human to become a scavenger's meal.

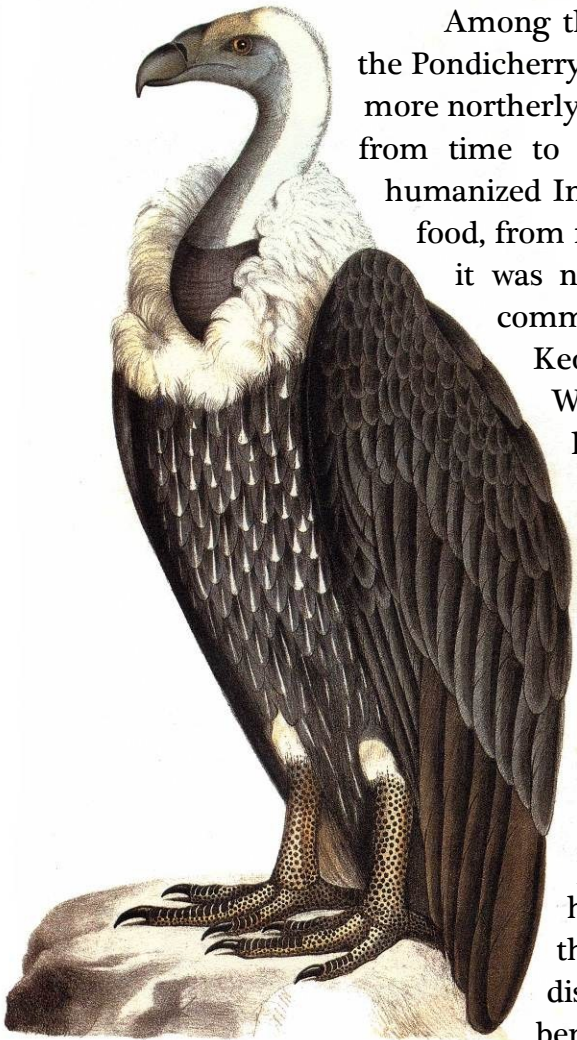
The favor shown towards the carrion birds by the people of the Far East can be partly accredited to simple pragmatism. Regardless of preparations and preventive measures, disasters do happen; and their aftermaths are more bearable and less dangerous if a cleanup crew is already on hand. But a greater source of fondness for vultures in the Far East lies in the spiritual beliefs of its peoples. Two of the world's great religions have arisen here: Buddhism and Hinduism, each with hundreds of millions of adherents. Hinduism is the older of the two, its roots dating back to the beliefs of the earliest human inhabitants of India. In Hindu India, both animals and humans are divided into castes. The castes of the animals culminate in Domestic Cattle; a vital part of rural society, providing ready supplies of milk and manure, Cattle have become so sacred that devout Hindus believe that any person who kills, eats, or permits the slaughter of a cow will be sent to hell for as many years as there were hairs on the animal's hide. Occupying the lowest caste of the animals is the Dog, a ubiquitous scavenger throughout the subcontinent. Humans are divided into four primary castes, or *varnas*, each said to have created from the body of a primordial being: *brahmins* (priests and teachers), *kshatriyas* (rulers and soldiers), *vaishyas* (merchants and traders), and *sudras* (laborers). A fifth caste, the *achutas*, are better known as "untouchables," and were unclaimed by the primordial being. They are persons who are believed to have done something incredibly horrendous in their previous incarnations of life, and so are impure and polluted; the mere thought of contact with them is disgusting to many pious Hindus of other castes. Untouchables are typically appointed tasks that are considered too vile for anyone else, like handling human corpses, removing dead animals from the streets, and tanning animal hides.

Despite the similarity of vulturine behavior to certain of the untouchables' tasks, many of the ancient and favorable Indian beliefs regarding the carrion birds were accommodated into Hindu mythology, among them the idea that the king of the vultures was also the ruler of hell. Hindus identified this king with Jatayu, a mythical character whom we'll meet a bit later, and in honor of him frequently offered gifts of rice-balls to wild vultures.<sup>[2]</sup> (It wouldn't be a bad idea to get on the *good* side of the ruler of hell, just in case.) Some people of India held that vultures fed upon the dead in the underworld, just as on Earth, and that if the birds found a live person among the corpses, they would gladly fly that fortunate soul back to the living world.<sup>[3]</sup> Intimately involved with the strong and terrible spirits that frequented the realms of the dead, vultures were never less than highly respected, and some people even sought out their company in order to learn from them.

In medieval India, any non-*brahmin* Indian who accidentally killed a *brahmin* was condemned to become a social outcaste for twelve years, forced to dwell somewhere outside of their home village - usually in a charnel ground, where corpses were laid out for cremation or exposure - to carry a human skull for use as an alms bowl, and to mount the skull of the *brahmin* whose death they had caused on a wooden pole, carrying it around with them to warn everyone of their status as a pariah.<sup>[4]</sup> These *kapalika* (skull-bearers), as they became known, were said to be privy to much mysterious spiritual



knowledge, as they were intimates of the wrathful and powerful *dakas* and *dakinis*, the spiritual denizens of the graveyards.<sup>[5]</sup> Like black magicians around the world, *kapalika* were reputed to be able to create and control zombies, speak to the dead, and partake of all of the other abilities that are attributed to necromancers. Thus some holy men chose to become *kapalika*, voluntarily living in charnel grounds for years in order to learn their secrets. To do so, the *kapalika* lived like human vultures; not only did they hang around graveyards, but they often perched on corpses for the purposes of meditation, and sometimes even ate human flesh to sustain themselves. This was only fitting, as the only company that a lonely *kapalika* usually had were the *chandalis* (corpse-eaters) that frequented the charnel grounds: Golden Jackals, Pariah Dogs, kites, crows, and above all, vultures.



Among the vultures of the Far East, the White-rumped (left), the Egyptian, the Pondicherry, and the Indian Griffon are most typical of lowland India, although more northerly species like the Eurasian Griffon and the Monk Vulture also appear from time to time. The White-rumped Vulture, in particular, has thrived in humanized India, and was able to inhabit most any environment with sufficient

food, from forests to deserts to the interiors of major cities. Until the late 1990s,

it was not only the most abundant Old World vulture, it was the most common large raptor on Earth. A census taken of the raptors in India's

Keoladeo National Park in the mid-1980s discovered an astounding 244

White-rump nests in active use, inside an area of about 29 square

kilometers (11.2 mi<sup>2</sup>); no other raptor species occupied more than a

dozen nests inside the park.<sup>[6]</sup> A census of the entire White-rump

population was never carried out, but there must have been

millions if not tens of millions of the birds. Although they never

colonized forests and urban areas to the extent that the White-

rump did,<sup>[7]</sup> the Indian Griffon and the more easterly Slender-

billed Griffon were not far less successful; together with the small

Egyptian Vulture, these birds performed their duty of keeping the

Indian subcontinent clean of carrion with dash and élan,

meanwhile attaining numbers that astonished travelers from other

parts of the world. They also provided an exception to the rule that

human encroachment is *always* bad for wild animals, especially for

those at the top of the food chain; as David Houston put it when

discussing India's vultures, "it is difficult to believe that they have not

benefited enormously from human activity and are today far more

abundant than would have been the case under natural wildlife systems."<sup>[8]</sup>

Vultures were a nondescript and familiar sight to people of the region, whether in cities, villages, or wild areas; and hundreds of their hunched forms could commonly be seen on the roofs and walls of slaughterhouses, around garbage dumps, and in the outskirts of human settlements. Sometimes vultures habitually perched in trees that were farmed for fruit or wood, especially if said trees were planted near favored feeding sites; this habit made them rather unpopular with the growers, as the vultures' excrement was so toxic that it would eventually kill the trees if the birds made a regular habit of roosting on them.<sup>[9]</sup> Besides which, as the British expatriate Stuart Baker pointed out, the White-rumped Vulture's ordinary call "is like that of a magnified querulous cat . . . but in copulation they give vent to the most terrific roarings and gruntings which can be heard at a very great distance, and render them a great nuisance when, as is often the case, you have several pairs

nesting in your garden."<sup>[10]</sup> Such qualms aside, the vultures were not entirely ill-favored. Vulture feathers were usually in high demand among Indians, as they were needed for fletching the arrows used in warfare and religious ceremonies,<sup>[11]</sup> but of greater importance to most Indians was the birds' ability to devour all kinds of animal matter. The *Dharmasutras*, the law codes of ancient India, stated numerous times that vultures were useful creatures and were not to be killed for any reason. The fines levied for killing the birds were similar to those for killing other useful animals, such as Cattle, Dogs, and mongooses. Vultures were a welcome sight at the tanneries that provided employment to many of the untouchables, where the vultures would devour skinned carcasses so quickly that more ill-favored scavengers like Pariah Dogs or Golden Jackals often wouldn't bother to show up. A similar situation prevailed at bone mills, where animal bones were pulverized to make fertilizer; the usually-impoorished people who collected bones for a living could depend on vultures to quickly pick clean the bones of any carcass left out in the open, thereby rendering them ready for sale to the mills.<sup>[12]</sup> Sacred though they were, India's Cattle still died of natural causes in great numbers, and without vultures, their meat would only go to waste. But when presented with a Cattle carcass that still had an intact thick hide, the vultures often had a hard time trying to gain access to its contents. Thus humans and vultures worked together to dispose of Cattle carcasses: humans would skin the carcasses, carrying off the intact hides for their own use, and the vultures would then fly in and devour the now-accessible unwrapped meat in a matter of minutes, leaving the bones behind. This source of food was so abundant and dependable for the birds that it allowed them to colonize previously inhospitable environments, like the deserts of northern India, by living and breeding in the towns that sprang up there.



As was the case elsewhere in Eurasia, the majority of India's languages derived from the tongue of the ancient Indo-European people, which migrated to the far ends of the Old World in prehistory. There has much debate about the original locale in which Indo-European was used, with the current consensus favoring the steppes of western Asia, from which it spread to the rest of Eurasia starting in the fourth millennium BCE. A key Indo-European root word, *\*gultur*,<sup>[13]</sup> would have its most notable evolution further east; the languages of the Indian subcontinent appear to have preserved the closest surviving relatives of this, the most important of the several Indo-European words for vultures. In India, *\*gultur* is thought to have been originally applied to vultures, most likely in a general sense; and it later came to be applied to a variety of large herbivorous mammals, especially wild cattle. This pattern of usage may seem puzzling at first, but consider: *gultur* sounds very much like the modern English word *gulper*. *Gulp* is known to be an onomatopoeic word; that is, its pronunciation attempts to imitate the noise made by someone who gulps. *Gultur* was likely also onomatopoeic in origin, and referred to the fast and furious feeding habits of vultures. At some point, it also began to refer to the food that the vultures were so fond of gulping: the flesh of large herbivores. Hence the names given



to herbivores such as the Gaur (a species of wild cattle) and the Nilgai (an antelope of India's northern plains) originally signified merely that they were potential vulture food.<sup>[14]</sup> This is by no means a unique pattern of linguistic development; there are many examples in other languages of words for food becoming words for the animals that consume it, or vice versa. In Tibetan, the generic word for a vulture is *rgod*, while the term for the Tibetan vultures' favorite staple, the Wild Yak, is *rgod-g.yag*.<sup>[15]</sup> The process of gustatory philological metamorphosis is particularly blatant in Persian and related Central Asian languages, in which a vulture is often called a *karkas*.

As a generalized word for vultures, *\*gultur* came to be replaced in Indian languages by the not-too-dissimilar *\*ghi*, also from an Indo-European root. *\*Ghi* originally meant something like "gape" or "wide opening" (its ancestor also served as a root for the English words *gap* and *yawn*), and again was applied to the carrion birds in direct reference to their feeding habits.<sup>[16]</sup> It's unclear when this happened, but it seems likely that *\*ghi* became common only after *\*gultur* lost its more specific meaning. *\*Ghi* remains in use as the default word for vultures in modern Hindi, although it now sounds more like *gidh* and typically has qualifying words attached to it. But the original meaning of *\*gultur* has not been entirely lost; in the north of the subcontinent, it survives in a few local Indian names for vultures,<sup>[17]</sup> and also in a Tibetan name for the Lammergeier, *gourral*.<sup>[18]</sup> The latter is noteworthy because it's essentially identical to the name of a mountain-dwelling antelope of the region, the Himalayan Goral, which forms a major part of the Lammergeier's food supply; thus it provides a current analogue for the ancient evolution of *\*gultur*. And, as you may have guessed, *\*gultur* provided part of the basis for the modern English word *vulture*; but [that story](#) will have to wait until Chapter 7.

Cultural traditions differ upon the question of how India came to be blessed with these large and numerous carrion-eating birds. The Baiga people of the Mandla District in central India say that the birds' scavenging habit began with the death of a man named Juna Dewar. His wife, Jitho, wept and bemoaned about how she had spent so many years to feed him well and give him a stout, strong body; but now, with Juna dead, no one would eat that rich body, and it would merely rot and stink in the sun. After she incorrectly performed the funeral rites for him, a vulture named Rangidh showed up. Seeing the vulture, Jitho beseeched him to eat her husband's body; but Rangidh refused, saying that he would consume the cadaver only if Jitho made his name famous and blessed him. Jitho agreed, and gave the vultures their names; one was christened Jappa, another Koroliha, and a third Dhorkawaha. She then blessed the birds, saying that they would have fresh meat every day and, in the process of consuming it, they would gain the ability to send all living creatures to the underworld of the dead. Hearing his demands satisfied, Rangidh ate Juna Dewar's body; after polishing off the last of it, he washed off his bill in a water tank, sending Juna's soul off to the underworld.<sup>[19]</sup>

The Gond people of the same district tell a different story. According to the Gond, humans and animals originally all lived together in perfect harmony. One day, the gods Niranjani and Nirankali decided that all of the beings must be called together and taught what sort of foods they should eat. The Gond were allotted vegetables, the Pig was given excrement, the Tiger was provided all kinds of meat. Most of the birds were told to eat grains and fruit, but the Vulture, Stork, and Goose were sent to a small stream to eat the pearls in the streambed. The Stork and Goose happily ate them, and were content with aquatic food from then on; but the Vulture was sickened by this repast, and decided to fly back to the gods to complain about it. On the way back, the Vulture flew past a man who was cooking beef, and who threw a bit of raw meat out of his house onto the ground. Seeing the tantalizing red tidbit, the Vulture stopped and gobbled it up; it was delicious, and since then Vultures have given up pearls and lived exclusively on raw meat.<sup>[20]</sup>

The Gond of the Ganjam District in eastern India differ yet again in their account of the vulture's origins. They say that one day the clouds in the sky began to shake, and Nirantali, the creator goddess, began to wonder what had happened to make the clouds shimmy so. She called humans, birds, and animals to find out what was wrong in the heavens; but none of these creatures were able to reach the clouds, and Nirantali sent them back in disappointment. She had a dream that night of a beehive full of honey, from which she should take the wax and sculpt a large, long, necked, hook-billed bird; and the next day, she did so, creating the first vulture. After it had taken shape, Nirantali promptly placed a huge, heavy stone on top of the vulture to test its strength, then called for it to come and perch on her shoulder. The great bird promptly threw off the stone as though it was no more than a tuft of down, then flew to her shoulder. Satisfied that it possessed the necessary strength, she told the vulture to fly to the clouds and see what had happened to make them shake so horribly. The vulture agreed, but asked Nirantali to help it fly so high into the air; she grabbed the bird by the leg, and hurled it into the sky with all her strength.

Among the clouds at last, the vulture flew here and there, but could see nothing wrong. Concluding that the clouds shook merely of their own volition, it returned to Nirantali, tired and hungry, and asked her for food. Nirantali gave the vulture a whole Chicken, which the carrion bird ate happily; but all of the other beings, seeing the vulture's strength and favor with Nirantali, became very jealous. From then on, they went out of their way to slight and harass the vulture at every opportunity. Understandably angered by this treatment, the vulture returned to Nirantali and told her that all of the men and beasts hated it; so where could it live in safety, beyond the slings and arrows of the envious hordes? Nirantali told the vulture that from then on, it could live in the treetops, eating whatever it could catch from there. Further, it could obtain delicious revenge on everyone by consuming their bodies when they died.<sup>[21]</sup>

Vultures are also recurring characters in the religious mythology of the Indians. The best-known incarnation of a raptor in both Hindu and Buddhist mythology is undoubtedly Garuda the Devourer, the vehicle of the god Vishnu, who has had countless temples built in his honor throughout the subcontinent (and beyond).<sup>[22]</sup> Legend has it that Garuda was the offspring of the Kashyapa, a sage, and Vinata, a sort of divine hawk; and according to some interpretations, Kashyapa and Vinata also parented the king of vultures, making Garuda the brother of the vulturine ruler of hell. Garuda hatched from his egg after five hundred years of incubation, fully grown and lighting up the skies with such radiance that the deities initially mistook him for the god of fire. Garuda's mother Vinata and her sister Kadru had a lengthy and nasty sibling rivalry; and since Kadru was the mother of the Nagas, the serpent people, both Garuda and his mother became famous as enemies of snakes. One story told that Vinata was captured and held captive by Kadru and the Nagas, who told Garuda that she would be freed only if he stole the nectar of immortality from the gods. Garuda did just that, storming the heavenly abode of the god Indra and pilfering the nectar from the celestial mountain where it was kept. Indra gave chase, but proved no match for Garuda in battle; when he flung his strongest weapon, a thunderbolt, it only broke uselessly across Garuda's body. Still, Indra was able to snatch the nectar away just as the king of the Nagas was about to drink of it; but some of the nectar fell to the sharp-edged grass below. The Nagas lapped up the drops, cutting their tongues into forks but also granting all serpents the boon of immortality (an allusion to snakes' regular shedding of their skins). The god Vishnu finally managed to defeat Garuda, and then bound the Devourer to become his mount - for all time, as the god also gave the gift of immortality to Garuda. As a reward for the courage and strength he exhibited in stealing the celestial soma, Garuda received the further boon that Nagas would be his designated food from then on.<sup>[23]</sup> Garuda is still said to have an implacable



hatred of Nagas and of evil (though some stories have him calling a truce with the Nagas, and eating snakes no more<sup>[24]</sup>); and he roams about devouring bad men, delivering them to the not-so-tender mercies of his brother, the king of hell, although Garuda's parents forbade him to eat the priests of the *brahmin* caste.<sup>[25]</sup>



Garuda (left) was originally based upon a bird of prey, and his earliest depictions suggest a creature that most observers have assumed was an eagle. In actuality, as with the misidentified "eagles" of the Old Testament, the evidence strongly suggests that Garuda was originally patterned after a very specific vulture. For starters, Indian folktales speak of Garuda being very attracted to bloodied flesh. The fable of Kathámukha states that a queen who bathed in a lake of red dye was pounced upon and carried off by Garuda, because her skin had been dyed the same color as raw flesh. However, the peaceable bird dropped her off on the slope of a high mountain when it realized that she was alive.<sup>[26]</sup> Another fable tells of a man who, while wandering in the wild, climbed into the carcass of an Elephant in order to escape from the scorching sun. When a rainstorm and flood caused the skin of the carcass to shrink, trapping him inside, a bird "of the race of Garuda" tore open the skin with its bill and claws; but, upon seeing that there was a man within, flew off. The man was then able to escape his cadaverous prison through the hole made by the would-be scavenger.<sup>[27]</sup>

Garuda's ancient name, which seems to be a combination of two Indo-European roots, also points towards a vulturine origin. The first root, *\*garg*, is an onomatopoeic imitation of the sounds made by a creature when eating;<sup>[28]</sup> it's thus very similar in application to the words *\*gultur* and *\*ghi* that served as bases for vulture names. The second, *\*ud*, means "up, out, or away,"<sup>[29]</sup> and the name as a whole seems to mean something like "swallower up high"; hence Garuda's nickname, the Devourer. In its original derivation, Garuda's name is very similar to some of the names still applied to vultures in the Indian subcontinent, especially *garur* ("snake-eater") and *gourral*, one of the names for the Lammergeier<sup>[30]</sup>; and Garuda's lighting of the skies after his hatching bears more than a passing similarity to a Tibetan belief that the *gourral* tends an eternal light on a high cliff, so that religious pilgrims traveling at night may still find their way.<sup>[31]</sup>

An ancient Indian religious text, the Bráhma Purána, tells of a mountain named Vaikanka in the land of Meru (western Tibet), where "offspring of Garuda in the shape of birds fly about . . . they are strong, fly quickly and mighty are their achievements."<sup>[32]</sup> The Tibetans themselves equate Garuda with a bird that they call the *mkha' lding*, "sky-soarer," or *khyung*, "horned golden eagle."<sup>[33]</sup> A similar bird was mentioned in the ancient Chinese bestiary *Shan Hai Ching*, which stated that among the many curious creatures inhabiting the Nan Shan Ching Mountains bordering Tibet was the *ku tiao*,

"evil eagle," which resembled the eagle but possessed horns. The bestiary added that the *ku tiao* "makes a sound like a baby, and eats people."<sup>[34]</sup> The former comment could be interpreted as a reference to the Lammergeier's high-pitched trilling or chirruping calls, and the latter likely refers to its reputation for launching predatory attacks on humans (about which much more later). And yet, most people would consider this "horned eagle" to be fabulous and mythical, since birds don't have horns – or do they? Upon seeing a Lammergeier standing against a background of white, the pale-feathered cranium and temples of the bird seem to vanish, and the tapering black feathers above its eyes do look remarkably like horns jutting from its head (right).



Still, the most telling clues of Garuda's original identity must be that the stories about him almost invariably tell of him carrying off his Naga prey to high mountains,<sup>[35]</sup> and that his feeding places are said to be covered with great heaps of bones, heaps that with the course of time have "come to look like the peak of a mountain."<sup>[36]</sup> In the Indian epic of the Ramayana, Garuda is stated to have carried ambrosia down from heaven (iii 162), as did the *huma*, the incarnation of the Lammergeier in Persia. And Garuda's described coloration is suspiciously similar to the spectrum presented by an adult Lammergeier: tawny head, golden eyes, reddish from navel to throat, and black around the face.<sup>[37]</sup> The contrast of a rust or golden color with white feathers seems to have been particularly important to the visualization of Garuda. In the Pakistani state of Sindh, where genuine Lammergeiers can be seen from time to time, the large vulture is known as the *ukab*. *Ukab* appears to be a very ancient term; as it also occurs in Persian speech, it likely dates from the time when Indo-European speech first crossed southern Asia and arrived in India. Its most likely derivation is from the root word *\*okru*, meaning "of the eye."<sup>[38]</sup> But when split into its component syllables, the modern *ukab* becomes the Hindi words *ukka*, meaning "high," and *ab*, "luster or brilliance."<sup>[39]</sup> If all of these meanings are amalgamated, then *ukab* could be defined as "brilliant eye of the heights"; a poetic, though apt, description of the Lammergeier, and one which echoes both the original meaning of *Garuda* and the Hindi name for the Lammergeier, *Argul*.<sup>[40]</sup> The latter is an Indo-European derived word that is very similar to the Greek *argil* and the Latin *argent*, and likely has the same meaning: "shining" or "jewel-like."<sup>[41]</sup>

But as the legends surrounding him are now so old, and stories of him have now spread throughout much of Eastern Asia, Garuda has long since departed from an exact replication of a Lammergeier. He is now commonly depicted as a chimera, a being with the torso, arms, and hands of a man and the head, legs, talons, and wings of a raptor; like most mythical creatures, his bestial origins have been molded into something more human. There's no such ambiguity about Garuda's eldest son (or nephew, depending on whose interpretation one believes),<sup>[42]</sup> Jatayu. This grand figure is found in the *Ramayana*, India's millennia-old national epic, a story as beloved in India as the legend of King Arthur was in medieval Britain. It tells the saga of the hero Rama, son of the great King Dasathra, and his love Sita, a beautiful princess, who was lusted after by the evil *rakshasa* (shape-shifting demon) Ravana. In order to protect Sita from the demon, Rama and his brother Lakshmana spirited Sita off to a remote forest, where even Ravana would be hard-pressed to find her.

While gathering food in the forest one day, Rama and Lakshmana encountered a huge vulture, as tall as a tree, laying quietly in a clearing. They quickly decided that the awesome bird must really be a *rakshasa* in disguise - perhaps even the dreaded Ravana – and so prepared for a desperate battle. But, just to make sure, Rama approached the vulture, introduced himself, and asked what it was. In

surprisingly gentle tones the bird told Rama that it was an old friend of his father: Jatayu, the king of the vultures, a faithful friend to the good and a terrible enemy to the evil. He had once even saved King Dasathra's life, when the King challenged the god Sani to battle in revenge for the pestilence and famine that Sani had inflicted upon the land. During the battle, Sani destroyed the King's flying chariot, and he would have fallen to his death had not Jatayu swooped beneath him, caught him on his outstretched wings, and carried him to safety. Jatayu then told Rama of his entire lineage, explaining how he had been mothered by Syena the falcon; and, merely as an afterthought, described in great detail how all of the living creatures of the world had come to be.

The great bird warned Rama that though he wasn't a *rakshasa*, the forest was infested with those demons, as well as many fierce beasts. He offered to accompany Rama and his brother in the forest, in order to protect the lovely Sita when they had to leave her to gather food; for although Jatayu was now elderly and in declining health, he was still very fearsome and more than a match for most demons. Overjoyed at meeting such a noble old friend of his father's, Rama embraced the vulture and gave enthusiastic permission for him to accompany the little party.<sup>[43]</sup>

As it turned out, the protection was needed. One day, when Rama and Lakshmana were absent, the demon Ravana discovered Sita deep in the forest. He rode down from the sky in his flying chariot, seized the woman, and dragged her away with him into the sky. In despair, Sita happened to glance down from the chariot and saw a great vulture perched high in a tall tree. She called out to it, pleading for help, and screaming that she had been seized by a *rakshasa*. The great vulture looked to the sky and saw what evil deeds were transpiring. In a voice that shook the entire forest, he sternly cried, "Release Sita now, O evil-minded one! You have sealed your own doom by abducting this woman, and now I am here to stop you! I may be old and weak, but I won't stand by as you carry away this princess. When I strike you with my beak, you will fall dead from your chariot like ripe fruit from a tree."

Ravana, needless to say, heard Jatayu's challenge; but he made no response other than to steer his chariot towards the vulture's perch and charge him, leveling fearsome weapons at the king of vultures with each one of his 20 arms. Jatayu, not as slow as he looked, managed to swoop away and avoid the attack; then he mounted into the air and flung himself, talons first, at the demon. Vulture and demon alike screamed terrible battle cries, and anyone watching the spectacle would have sworn that they saw a collision of two winged mountains. With his many arms, Ravana fired vicious-looking flaming arrows into Jatayu; but the vulture ignored his wounds and charged the demon again. He broke Ravana's jeweled bow into two, then tore off the heads of the demonic horses drawing the *rakshasa's* chariot. Jatayu killed the charioteer with a single blow from his huge bill, then swooped and struck Ravana's chariot. Again and again the huge bird dove upon the vehicle, shattering it into pieces.

The gods applauded Jatayu's apparent victory over the demon; but Ravana was not yet done. With his chariot destroyed, the wily *rakshasa* managed to grab Sita with his right arms and dropped like a cat to the ground below. Still holding Sita, he drew his sword and faced the vulture; but the dauntless Jatayu again flew at Ravana, ripping at the demon's back with his talons and striking his multiple heads with his great bill. Ravana, enraged, was determined to kill Jatayu; he rushed at the bird and battered him with the fists of his ten left arms. Jatayu tore off those arms like the mere flesh they were; but no sooner had he done so then ten more arms magically grew in their place, like snakes rushing from an anthill. Ravana then dropped Sita to the ground to free his right arms and attacked Jatayu in earnest, striking at the vulture with his fists and feet; then he drew his sword, sharp as a woman's scream, and with two mighty swings sliced through Jatayu's wings. These massive appendages silently fluttered to the ground, shortly followed by Jatayu himself, his white feathers now



matted with blood. The vulture lay on the ground, as a cloud fallen from heaven, his breast slowly heaving as he struggled for breath. Sita knelt next to Jatayu, cradled his head in her lap, and wept. She gently stroking the great bird's feathers as she cried out for her love Rama to come, sobbing, "Here now lies the brave Jatayu, mortally wounded on my account," before Ravana dragged her away and sped off to his lair.<sup>[44]</sup>



Rama and his brother Lakshmana, hot on Ravana's trail, soon found the scene of the battle (above) – along with the dying Jatayu, whom Rama again mistook for a *rakshasa* in the guise of a bird. He drew an arrow from his quiver, fitted it to his bow, and approached the vulture; but recognizing his father's old friend, he lowered the weapon. Though Jatayu was knocking at death's door, he still noticed Rama coming and raised his head. In a strained, weakened voice he said, "O Rama, the foul demon Ravana has taken away Sita, as well as my life. I flew to her assistance and fought the demon in a battle for the ages; but although I smashed his chariot and killed his horses, he finally cut me down." Then Jatayu retched, covering his feathers with still more blood.

Rama wept and embraced Jatayu, asking him where Ravana had taken Sita. Jatayu told how Ravana had sped away to the south, assuring Rama that he would slay the demon and recover Sita safely. With blood flowing from his massive bill, the vulture looked up at Rama and softly repeated his name over and over, until his head dropped to the ground and his body fell limp. Rama, with his hands folded, cried out, "Speak more, noble bird! Please speak more!" But there was nothing to be done; Jatayu was dead. Rama and Lakshmana gave the great bird a funeral fit for a king, building him a huge funeral pyre and praying that Jatayu would be sent to paradise, never again having to be reborn to the pain of the mortal world.<sup>[45]</sup>

Unlike the more recent depictions of Garuda, Jatayu was clearly a bird through and through. It's thought that, like Garuda, Jatayu was originally patterned after the Lammergeier, as he is sometimes described with a dark-grey back, white breast, and red eyes;<sup>[46]</sup> but, because Lammergeiers don't inhabit lowland India and are almost mythical there, another vulture must have served as the



standard visual model for the noble bird.<sup>[47]</sup> Jatayu is typically depicted in Indian art as a mostly or entirely white bird, probably patterned after the [Indian Griffon](#), a bird whose predominantly pale plumage makes for quite a contrast with that of the very dark and generally more common White-rumped Vulture. As would befit the mythical vulture king, the Indian Griffon is dominant over other scavenging birds at carcasses - except for the substantially bigger Himalayan and Eurasian Griffons and Monk Vulture, but those birds are seen in the lowlands only rarely.<sup>[48]</sup> The only other vulture frequenting the Indian lowlands that looks remotely like Jatayu is the Egyptian Vulture, the smallest vulture of the entire region, which despite its many similarities to the Lammergeier doesn't seem a likely inspiration for the tree-sized king of vultures; for no royal personage, mythical or otherwise, could ever be accused of such humble habits.

Despite their ease with the presence of people, the White-rumped Vulture and the other griffons seldom took their association with humanity to the extreme of actually nesting on buildings; but the Egyptian Vulture wasn't so choosy. The species is famous in India for the habit of building its nest atop crumbling forts, dilapidated mosques, disused tombs, or any other structure sufficient for its purposes. Able to eat virtually any kind of animal matter, and with an especial fondness for human byproducts, the "White Scavenger Vulture," as it is popularly known, was until recently a common sight throughout the subcontinent. When the British began their rule in India during the 18th century, their colonists predictably singled out this small vulture and its easy familiarity with the waste of humans for particular disdain; in Anglo-Indian dialect it was dubbed the *shawk*, a rather obvious portmanteau.<sup>[49]</sup> By whatever name, the Indian birds are rather different from the Egyptian Vultures found elsewhere in the Old World. The Indian version is smaller and more slightly built, has a yellow-tipped rather than black-tipped bill, and has weaker feet and talons.<sup>[50]</sup> The color difference likely has little significance, and the small size could be chalked up as an adaptation to a hot and humid tropical climate, but the latter two differences might well be adaptations to the comparatively easy living to be found as an associate of humanity. In other words, the subspecies of the Egyptian Vulture found in India may be an offshoot that came into existence as a direct result of cohabitation with humans.

Though the people of India seem to appreciate this Vulture's efforts on their behalf, like other highly familiar creatures of civil habits it is generally afforded little respect and is treated with familiar contempt. In ancient Sanskrit writings this bird is sometimes known, a tad unfairly, as the "impotent or weak Vulture."<sup>[51]</sup> One story tells that, long ago, the treasured cows of the gods were stolen by a race of demons known as Panis, with the deities none the wiser. Upon discovering that their cattle were missing, the gods beseeched the Egyptian Vulture to find them, flattering the bird into doing their bidding by speaking of its "excellent and powerful" wings. After agreeing to undertake the task, the Vulture did soon discover the cattle, along with the demons who had stolen them; but the bird proved vulnerable to that age-old curse of bribery. After accepting a bribe of excrement from the Panis, the mendacious bird flew back to the lair of the gods and informed them that although it had looked everywhere, their prized cattle were nowhere to be found. But the god Indra was suspicious of the Vulture's claim, noticing that it looked unusually well fed for a bird that had just completed a long and exhaustive search. He took the Vulture in his hand and proved the bird's deception by literally squeezing the bullshit right out of it. The gods then released the Vulture, but only after forever cursing it with the words, "May thy sustenance be of bad origin"; and it still is, to this day.<sup>[52]</sup> The Egyptian Vulture has adopted civil and pastoral life so fully that many of its local names are patterned after the names of villages, or of cowherder's settlements. Predictably, the species is also known as the "dung-vulture" in Hindi,<sup>[53]</sup> and the "dung-kite" among the Tamil-speakers of South

India.<sup>[54]</sup> The birds didn't subsist on excrement entirely, of course. India's Egyptian Vultures frequented slaughterhouses, as did the much bigger White-rumped Vultures, but the Egyptians tended to arrive earlier than the larger vultures, and upon arrival fed more upon scattered bits of meat, dried blood, and maggots than on chunks of meat, thus avoiding undue competition with their heftier cousins.<sup>[55]</sup>

With the debatable exceptions of Africa's Hooded Vulture and the New World's Black Vulture, no other vulture in the world has adapted to human presence as fully as has the *shawk*. In the words of the British ornithologist Hugh Whistler:

It haunts towns and villages, and while ready to eat any form of garbage or carrion appears mainly to live on human excrement; hence the detestation in which this species is commonly held by all classes. It has no fear of man, and perches on buildings and trees in the most crowded bazaars, or stalks sedately about open spaces, graveyards and camping grounds, looking in gait and appearance much like a large, disreputable old hen.<sup>[56]</sup>

Other Britons thought the bird "from its unclean propensities . . . perhaps the least interesting of its family," but "nevertheless an important support to the somewhat deficient sanitary customs which usually obtain about native villages and bazaars in India."<sup>[57]</sup> Throughout India, these vultures depended on humans for food, for nesting sites, and even for material with which to build their nests. Another ornithologist, Allan Hume, described how these birds would line their nests

with any soft substance. . . . Old rags are a great stand-by. In many parts of the country, wayfarers, as they pass particular trees, have a semi-religious custom of tearing a strip off their clothes to hang thereon. Those are a perfect godsend to the Neophrons [Egyptian Vultures] of the neighbourhood, whom I have more than once watched robbing these rural 'shrines' of their trophies by the score.

He then went on to postulate that old and dirty cotton-wool found in the nests was taken from "half-burnt dead bodies [thrown] into the river," and added that he sometimes found nests whose linings consisted entirely of human hair.<sup>[58]</sup>

Such intimately familiar relationships between humans and vultures were wholly bizarre and inexplicable to many visitors to India - especially those from Europe, where vultures were neither well-liked nor usually very confiding in humanity. Europeans found firmer grounds of mutual understanding with hunting, which in all of its many forms was the favorite sport of Indian royalty. Falconry, the practice of hunting live prey by using trained raptors as killing weapons, was brought to India in the 16th century by the Muslim Mughals, who had themselves inherited it from Arabic traditions of the Near East. Compared to the rather severe effects that the sport had upon perceptions of vultures in Europe, those of India were little affected by it. Indian falconers did occasionally train Shikras, short-winged hawks similar to Sparrowhawks, to attack large birds, including the then-exceedingly common and confiding Egyptian Vultures. The British writer D. C. Phillott noted that during the late 19<sup>th</sup> century, falconers in India's Kapurtala State were fond of this pastime, though the Shikras had to be specially trained to attack such improbable prey by tying chunks of meat to the back or head of a captive Egyptian Vulture and then encouraging the hawks to fly at it and feed on the meat. Once a Shikra had been successfully trained, attacking the famously unwary Egyptians was a simple matter: "The falconer, shikra in hand, has only to walk up to within a few feet of the unsuspecting vulture while it is resting on the ground, throw the shikra, and secure the quarry before it has even got so far as to spread its wings for flight." Some Indians even took to hunting the Egyptians with tame Caracals (or "lynx," as they're commonly known in India), medium-sized cats that are skilled bird-hunters in the wild. According to Phillott, "The Egyptian Vulture is also a quarry easily

taken. . . . The lynx simply bounds quietly and quickly up to it, and springs as the vulture prepares to spread its wings."<sup>[59]</sup> He rather uncharitably added that the Egyptian "does not seem to have any form of defence - except its odour."<sup>[60]</sup>

The Egyptian's larger and more formidable relative, the Lammergeier, did have a "form of defence" against falconers; in fact, in northern India, it was feared as a predator that specialized in killing falconers' hawks. Although falconry never gained many adherents among Hindus and Buddhists, the sport remained popular well into the period of British rule of India, when like-minded Britons sometimes accompanied the Muslim falconers on their hunts. In the 1850s, while traveling on a falconry expedition in the state of Sindh, the British explorer Richard F. Burton saw his friend Ibrahim Khan Talpur shoot an arrow at a Lammergeier "who was sunning his foul plumage upon a bit of open ground near the bleached skeleton of some long-since departed camel," with the remark, "I never pass one of these devil's chicks without a shot at him." The range being great, the spent arrow merely bounced off the vulture's "iron pinions" without doing it any harm, and the bird quickly departed. When Burton inquired of his host why he harbored such hatred for the *Ukab*, as the Lammergeier was known in northern India, he was told that Ibrahim "once had a magnificent Bahri [Peregrine Falcon], the noblest animal that ever met a falconer's eye." One day he flew this Falcon "after a little heron which we all expected to see killed in a moment" when one of his companions cried out, "see the Ukab! oh, the Ukab!" And, said Ibrahim, "High above us was the wretch, a black dot in the blue sky, looking out like an Affghan, for what he could plunder." Ibrahim and his men shouted and waved, attempting to get the Falcon's attention; but "unfortunately my poor Bahri was so eager after her quarry, that nothing could tempt her out of the way of destruction." Then all three birds - the Falcon, the Heron, and the Ukab - rose so high in the air that they were lost to sight, leaving Ibrahim hoping that "the Maloon [cursed one] had been frightened by our noise." But then, he said, "a speck appeared like a fly in the air, larger and larger it grew," until it fell to the ground at their feet. "It was poor Sohni my falcon. The accursed vulture had shattered her skull with his foul beak."<sup>[61]</sup> And since that day I have liberally dispensed Kisas [curses] to all his breed."<sup>[62]</sup>

Burton added in the endnotes of his book *Falconry In the Valley of the Indus* that, "The Ukab, or Scinde vulture, is a mortal enemy to every species of hawk",<sup>[63]</sup> though it's unclear whether his hosts told him this or if he merely surmised it. It is possible that large raptors did occasionally kill falconers' hawks, but it's also quite likely that the falconers confused Lammergeiers with other birds; specifically the lowland-dwelling Tawny Eagle, also locally known as the *okaab*, which does have a proven record of attacking falconers' birds (though usually only to pirate their prey).<sup>[64]</sup> After his account of Ibrahim's story, Burton wrote of "an Ukab towering in his 'pride of place,' high above the dense vapours and reflected heat of the plains," which followed his party from one lowland marsh to another, as the "huge 'tiger of the air' . . . was apparently determined to dine on a Bashah [Sparrowhawk]". This isn't probable behavior for a mountain-loving Lammergeier, not even allowing for a generous amount of Victorian hyperbole and Oriental exaggeration. Burton added that the day's encounter with the Ukab ended with the bird "triumphantly ejecting us from his hunting grounds",<sup>[65]</sup> it was apparently so feared by the falconers that they would break off a hunting foray if one appeared.

The odd prejudices of falconers may also help to explain another mystery surrounding an Indian vulture; namely, the reason why the Pondicherry Vulture was (and sometimes still is) often called the *King Vulture* by the people of the Indian subcontinent, and not only in English. Speakers of the Hindi and Urdu languages know the bird as *Raj gidh* or *Mulla gidh*,<sup>[66]</sup> associating it with Hindu or Muslim rulers, respectively. Yet the behavior of the vulture that carries this appellation is curiously discordant with the other kings of the vulture world. Several other species – such as the Monk



Vulture, the Lappet-faced Vulture, and of course the King Vulture - have also been dubbed “kings,” but all of these are genuinely dominant birds which can enforce their rule over other vultures if they so desire. The Pondicherry Vulture is quite unlike these birds; although it’s willing to pirate prey from eagles and Egyptian Vultures, it usually avoids gatherings of other vultures,<sup>[67]</sup> and when it does attend carcasses where other large vultures are present its behavior is nervous and timid,<sup>[68]</sup> and certainly not kinglike. Its lack of aggression in such circumstances is so remarkable that some researchers have expressed bafflement about how this shy vulture manages to get enough to eat; indeed, its relative rarity may be partially due to its timidity at carcasses.<sup>[69]</sup> In a perhaps not-entirely-serious commentary on the matter, the editors of the *Journal of the Bombay Natural History Society* suggested in 1934 that recent reports of timid Pondicherry Vultures were, “Obviously a case of *lèse majesté* . . . a development among Vultures of the modern disregard for the divine rights of kings,” and cited a solitary case of a few Pondicherry Vultures feeding on an Elephant carcass while other vultures stood aside as evidence that “the disaffection has not spread through all parts of the country – and that there are places where the King-Vulture’s claim to supremacy remains undisputed.”<sup>[70]</sup>

Behavioral issues aside, the Pondicherry certainly is [an impressive-looking vulture](#); with its mostly black plumage, bare red head and inner legs, and heavy black bill, it's always been in much greater demand as a zoo exhibit than the plainer-looking griffons ([right](#)).<sup>[71]</sup> In the early 20<sup>th</sup> century, the Swedish zoologist Nils Gyldenstolpe observed the Pondicherry in Thailand (where it’s virtually extinct today), and wrote that the Vulture was “a rather beautiful species when seen majestically circling high up in the air on motionless wings, and with the bright sun shining on the red neck and thighs which then look fiery red.”<sup>[72]</sup> There were few vultures anywhere in the world that could elicit the word “beautiful” from a European observer at that time. Some pairs of Pondicherry Vultures also had the strange habit of nesting in the midst of colonies of White-rumped Vultures or Indian Griffons, an act akin to a hermit abruptly leaving his desert retreat in order to dwell in a Mumbai commune. The red-black-and-white Pondicherrys could hardly be any more eye-catching than when surrounded by masses of much drabber vultures, and this conspicuousness may well have helped to make the birds “kings” in human eyes. But there's more than one way to become a king; one can act like royalty, or one can associate with royalty. The Pondicherry seems to have taken the latter path, with a little help from human rulers.



In 1901, a French traveler by the name of Dr. Arbel paid a visit to the court of the Rajah of Baroda, who then ruled a small princely state in western India, near the Arabian Sea. Arbel reported that the Rajah kept a number of birds for use in falconry, still a popular pastime among Indian royalty. Most of the Rajah’s raptors were highly predatory birds like Shikras that one would expect to



find in a falconer's mews; but, unexpectedly, there were also vultures. Arbel unfortunately didn't record anything specific about these vultures, nor did he see them actually used in hunting. Still, it is suggestive that the birds were kept alongside falconers' Shikras, and that Arbel mentioned them alongside hounds and tame Cheetahs, which he did see in action as hunting animals.<sup>[73]</sup> Assuming that the Rajah's vultures were actually expected to kill prey, they most likely were individuals of the Pondicherry species, which has been reported to launch attacks on living prey both in modern field observations<sup>[74]</sup> and in some traditional Indian fables, which describe forest-dwelling vultures attacking live prey including snakes<sup>[75]</sup> and young monkeys.<sup>[76]</sup> If these tales were patterned after genuine vulturine behavior, then the Pondicherry Vulture, the Indian vulture that most commonly chooses to live in deep forests, is the only likely culprit. Like its African counterpart and close relation the White-headed Vulture, which definitely does kill live prey with some frequency, local names distinguish the Pondicherry Vulture from its more strictly carrion-eating brethren. Aside from the "king" monikers already mentioned, it's also called *Bhaonra*, "burden-carrier," in Hindi, and *Nalla borawa* by the Telugu-speakers of southeastern India.<sup>[77]</sup> The latter term literally means "reed-bearer"; in light of the snake-hunting behavior attributed to the Pondicherry Vulture, it seems likely that "reed" is either a euphemism for or a misidentification of another, more lively, long and thin object. Most tellingly, the Pondicherry is known as *Ganda garur*, "snake-charmer of the woods," by the Birhors of the northeastern state of Bihar.<sup>[78]</sup> These forest-dwelling people practice a mainly hunting-and-gathering lifestyle, and are intimately familiar with the behavior of the local wildlife. Since their forests are rife with venomous snakes, they also have good cause to be able to identify any predators that help to keep the potentially dangerous serpents at bay.

Even so, an additional question must be answered: namely, how and why any falconers could possibly choose to train vultures, raptors that are defined largely by their ability to live without killing, for the task of killing hunters' quarry. Indian falconers were rather more adventurous in their choice of trainees than their European counterparts, who stuck almost exclusively to the falcons, short-winged hawks, and a few select eagles, and who probably never attempted to turn vultures into falconry birds (with one notable exception, which we'll see [in Chapter 7](#)). The only known Indian hunting manual dating from the Mughal era reports that in addition to birds of prey, falconers also trained crows, cranes, and sparrows (?) for use in the chase;<sup>[79]</sup> compared to such unlikely candidates, a vulture seems like a relatively conservative choice for a falconer. Another notable difference in the falconry practices of Mughal India is that the raptors used in the sport were classified not by size or by the length and shape of their wings, as they were in Europe, but by the color of their eyes. Birds of prey were divided into two categories: dark-eyed, and yellow- or red-eyed, with the latter birds being much preferred as trainees for the hunt.<sup>[80]</sup> The Pondicherry Vulture falls into the yellow- and red-eyed category; in fact, it has both, with the males possessing yellow eyes and the females red ones. When coupled with the tales of vultures attacking live prey, this conspicuous sign of "fierceness" might well have been enough to recommend the Vulture to Indian falconers. And if the Rajah of Baroda kept Pondicherry Vultures for his falconers, chances are that the rulers of other Indian states did, too; for Indian royalty, like royalty everywhere, was a faddish and trendy lot. There are occasional records of Indian rulers paying large sums of money for vultures, including a mid-19<sup>th</sup> century report that the ruler of the princely state of Awadh, in northern India, acquired a pair of them for a staggering £5,000 (equivalent to almost \$60,000 today).<sup>[81]</sup> It's unlikely that a small fortune was paid just for the sake of obtaining a pair of inactive carrion birds to grace the palace. Thus the shy, retiring, but surprisingly lethal and trainable Pondicherry Vulture became known throughout India as the King Vulture, although *King's* Vulture would have been a more accurate title.

Among India's common people, the shy and mysterious Pondicherry Vultures were seen as powerful-yet-benevolent beings, whose interactions with humans were tinged with both compassion and melancholy. The Manda tribe, who dwell in the jungles of eastern India, tell a story emphasizing the kindly nature of these strange, forest-dwelling vultures. One day, while gathering fruit in the jungle with the other women of her village, a pregnant woman felt the pangs of birth approaching. Leaving the others, she found a secluded glen and there gave birth to twin boys. The other women noticed her absence, but naturally assumed that she must have been devoured by a Tiger or crocodile, and so returned to the village without her. Holding her infants, the new mother called out for help, but received no answer. Nightfall was approaching, and she might be devoured for real if she didn't leave the jungle soon. And so, she was faced with a hard decision: she could take with her either her new babies, or the two baskets of fruit that she had gathered; she wasn't strong enough to carry both. After some deliberation, she elected to take the fruit and leave the infants in the forest. After all, she could always have more children, but good fruit was hard to come by!



After the pragmatically negligent mother left, it wasn't long before the forest's resident pair of Pondicherry Vultures came sailing overhead. Seeing a pair of unguarded, snack-sized babies on the ground, the Vultures swooped down and carried them off, intending to eat them. But as the infants cried so piteously, the compassionate Vultures instead deposited them in their nest, and nurtured them with food and water for many months. When the boys had grown old enough to walk, the Vultures carried them down to the ground, where the great birds still watched over them. And when the boys had grown old enough to take care of themselves, the Vultures told them that they were free to wander over the countryside and beg for food and alms in the villages – but warned them to stay away from a particular village, where the Vultures secretly knew that the boys' human parents could be found. As the boys traveled throughout the countryside, beseeching for charity, they sang a song: "Our mother took away the fruit / She covered us up with leaves / The pair of Pondicherry Vultures raised us / Give us alms!" Touched by their song and piteous of their plight, the people gave the boys more than enough money to live on.

Eventually, curiosity got the better of the two boys, and they went to the village that the Vultures had specifically forbidden them to enter. As they traveled from house to house, singing their song, their mother was startled to hear her own boys singing of what had happened after she abandoned them. She rushed out of her house and embraced the boys. She and her husband wept tears of joy as they explained to the boys who they were, and told them that they wouldn't have to live with the Vultures in the forest anymore.

When the boys didn't return to the forest from their latest begging trip, the Vultures became worried. They took to the sky, searching over every village in the area for their missing charges. At last they came to the forbidden village; and when the boys' mother saw the great birds circling overhead, she intuitively knew what they had come for. She ran to her house and hid the boys under an overturned basket, hoping to veil them from the Vultures' piercing eyes. But the birds had seen her and the boys through a hole in the thatch of the roof. They swooped into the house, flung the basket aside, and grabbed hold of the boys, intending to carry them back to the forest. The boys' human parents grabbed hold of them, too; and a vicious tug-of-war ensued, with the biological human parents and the adoptive vulturine parents screeching furiously at each other as they struggled to keep hold of the boys that they all held so dear. There was one final, furious surge of strength by both sides - and the boys were torn in two. The Vultures quickly flew off, still clinging to their halves; the disconsolate human parents burned theirs on a pyre.

As the Vultures returned to their nest, they also intended to burn the remains, for they could not bring themselves to eat the flesh of their beloved boys. But as the birds laid the half-corpses down and set their own nest aflame for the pyre, the fluids of the bodies bubbled and spurted out from the burning flesh. Whether from curiosity or sorrow, the Vultures tasted these strange juices; and they found them so irresistibly delicious that they immediately pulled what was left of the corpses out of the fire and consumed them, then and there. Ever since then, Pondicherry Vultures have habitually eaten the bodies of humans whenever they find them.<sup>[82]</sup>

The Pondicherry Vulture is similar in many ways to that most familiar vulture of the Americas, the Turkey Vulture – similar enough that some visitors to India took to calling it the “Turkey Buzzard.”<sup>[83]</sup> Although the two species are completely unrelated (and the Pondicherry weighs about three times as much as the Turkey), they both have a similar color combination of blackish plumage and reddish heads, are of generally solitary habits, are especially attracted to small carcasses, are mostly unaggressive at large carcasses, and have an apparent liking for forested habitats. But there the similarity ends; for while the Turkey Vulture is able to seek out carrion among the trees with its powerful sense of smell, the Pondicherry Vulture, like the other Old World vultures, has no sense of smell at all. Neither does the White-rumped Vulture, which also occurs in Far Eastern forests and until recently was quite abundant there, although the preferred habitats of the two species are a little different. The White-rumped prefers relatively open forests where the canopy doesn't restrict view of the ground, while the Pondicherry is more often seen in dense, closed-canopy forests, where it has virtually no competition as a large scavenger.<sup>[84]</sup> In the forests of Kerala State in far southern India, Pondicherrys are commonly seen feeding on the carcasses of Gaur (wild cattle) and deer in the company of no other scavengers except Jungle Crows, and sometimes not even those.<sup>[85]</sup> The Pondicherry was also the only vulture that inhabited the more thickly forested areas of the Malaysian Peninsula, although those populations dwindled to extinction during the 20<sup>th</sup> century.<sup>[86]</sup> While food may be much harder to find in closed-canopy forests, any carcasses that are found only have to feed one or two vultures at a time, which helps to explain why the shy, asocial Pondicherry is the only Old World vulture known to dwell in thick forests.

As pointed out by the biologist Robert Grubb, in order to successfully scavenge in a forest, the Old World vultures have three conditions that must be met: a carcass must be visible from the sky, it must be surrounded by enough open space to allow the birds to take off from the ground, and there must not be any large carnivores like Tigers or Lions present. If any one of those conditions isn't met, then the birds almost certainly won't attempt to feed from a carcass, although they may perch near a carcass already claimed by large carnivores in hopes that the mammals will eventually leave them to



it. The first condition means that pickings in forests are likely to be slim during the monsoon season, when trees are thickly leaved and the undergrowth is at its most lush, ensuring that most carcasses are blocked from airborne view. Mortality of herbivores is also relatively low during the monsoon; it's much greater during the dry season, which provides more food for vultures.<sup>[87]</sup> Forest vultures typically only find about a third of large mammal carcasses during the monsoon, compared to almost two-thirds of them at other times of the year.<sup>[88]</sup>

On the other hand, thick undergrowth can provide cover to forest vultures that find themselves in inopportune situations. One British expatriate named E. Brook Fox recalled a situation in the Gir Forest where his party came across a buffalo that had been killed by the forest's resident Lions. Hoping to watch the cats on their kill, the Britons posted native guards armed with sticks on the kill to prevent the many vultures roosting in the surrounding trees from getting any bit of it; these men "had to exert the utmost vigilance to prevent it from being devoured, several vultures being killed by sticks on the kill." The surviving vultures didn't fly off, but instead ran into the thick underbrush surrounding the kill. After dusk, the party further drove all of the roosting vultures out of the trees (or so they thought), and the guards left the dead buffalo in the light of the night's half-moon.

Soon after they had gone hundreds of vultures ran out of the underbrush and in a few minutes the kill was a seething mass of birds; we whistled up the men who came up and pulled the birds off by their wings and neck and clubbed them right and left, killing several of them in the melee; the birds made no attempt to fly away but merely ran into the jungle. This continued until 11 o'clock when the men were tired and our patience worn out. We then went away and abandoned the kill which was finished off in a few minutes.

Fox thought this a strange occurrence, but he was told by veteran foresters that the local vultures commonly fed on carcasses at night,<sup>[89]</sup> though probably not usually under the threat of being clubbed to death for no good reason.

Somewhat surprisingly, the vultures may be more flexible regarding the presence of large carnivores. Forest-dwelling White-rumped Vultures often seemed to make a habit of seeking out the kills of large predators. These birds were commonly seen in huge numbers surrounding a Tiger that had just made a kill, waiting for a chance to seize a piece of the prize, although this was a very dangerous way for the vultures to make a living. Once on the ground, the birds are vulnerable to attack by a carnivore that takes exception to scavengers stealing from its kill; and not infrequently, White-rumped Vultures were caught and killed (but usually not eaten) by an angry Tiger as they attempted to feed from its prey.<sup>[90]</sup> Still the vultures continued to congregate near the striped cats, evidently because the Tigers' prey provided enough food for the Vultures to make it worth the risk. Unlike Lions and Dholes, Tigers don't hunt or guard carcasses in groups; and unlike Leopards, they don't hoist their kills into trees. Hence their kills are especially vulnerable to scavengers brave enough to face a Tiger's wrath.

In the Gir Forest nature preserve, White-rumped Vultures and Eurasian and Indian Griffons also appropriated the kills of big cats, but there they acted in concert with the local community of untouchables to do so. The forest, a nature preserve surrounded by humanity, harbors the world's sole surviving population of wild Lions outside of Africa, about 300 cats strong. With so many big cats in such a small area, it was inevitable that some of the livestock from the communities on the periphery of the forest would fall prey to Lion raids, and Cattle and Water Buffalo were often let loose to graze inside the forest, making them fair game even for lions reluctant to venture beyond the preserve. If a cow or buffalo was killed by the Lions, the animal's Hindu owner would not eat it, due to religious



scruples; but the hide was too valuable to go to waste, so an untouchable hide collector would be called in to skin the animal.<sup>[91]</sup> If the meat wasn't too ripe, the hide collector might take it as well; but it often was too ripe, and that's where the vultures came into play. Not only did the untouchables conveniently "unwrap" the carcasses by removing the hide, they also dragged them from underbrush into open areas to do so, meaning that the carcasses were then visible from the sky.<sup>[92]</sup> Once spotted, a skinned cow or buffalo could be skeletonized by the birds within half an hour. The vultures apparently faced little threat from the Lions; the big cats permanently abandoned their kills once humans took them over, so often that almost half of all kills made by the Lions were left to the untouchables and vultures before the cats could make a meal of them.<sup>[93]</sup> But the presence of the vultures wasn't all bad for the Lions, as the cats were able to wander scavenge in the Gir by watching for and trailing vultures to fresh carcasses and the kills of other predators.<sup>[94]</sup>

Aside from live prey, there is one other food source that could've helped to sustain the forest vultures. According to some 19th century European travelers in the jungles of Indochina, it was "the custom of the country to hang up the dead bodies to the trees, and there leave them."<sup>[95]</sup> In other words, the people of Indochina, along with many other inhabitants of the Southeast Asian forests, practiced tree burial. A tree burial was a ritual in which the body was hoisted into the branches of a large tree and left suspended there, to decompose or be devoured as the gods willed. Though it's still sometimes practiced today, the rite was once far more common in the region, declining only as more widespread religious beliefs began to take hold; the Malays, for example, practiced tree burial until a majority of them were converted to Islam in the 15th century.<sup>[96]</sup> Into the 20<sup>th</sup> century, some town-dwellers of the Yunnan Province in southern China reserved tree burials for dead infants, placing them high in the crooks of branches for the local vultures.<sup>[97]</sup>

Although the birds are clearly both available and willing, Hindus don't currently use vultures to dispose of their dead. However, different practices seem to have prevailed in ancient India, as the many literary references to funeral grounds dating from that time describe these as places where corpses were left exposed to scavengers. As a result, such places were frequented by vultures, feral Dogs, and the skull-bearing *kapalika* sorcerers.<sup>[98]</sup> Many Indian folktales refer to vultures eating human corpses; one notable tale from the Koraput District of eastern India even attributes this behavior to divine intervention. The tale explains that long ago, when people and animals were immortal, the creator god Kittung became so disturbed by humanity's rabbit-like procreation that he decided to send death to the world. Many people died upon its arrival, but the survivors merely tossed the corpses out of their village, neglecting to bury or burn them. One year there was a terrible epidemic of illness, and many people died all at once. The survivors tried to remove the corpses from their village, as they had before, but before long they were too weakened by exertion and sickness to do so. Before long, all the land stank of death. Seeing this, Kittung traveled to high hill and caught a vulture, which at the time was a very thin and weak bird, as it never able to find enough food. Kittung took the vulture to the plague-stricken village and told it to do what it did best there. Since then, the vulture feeds on bodies, including those of humans. It now has all the food it wants, and is so well-fed and strong that it can fly higher than any other bird.<sup>[99]</sup>

There's also much archaeological evidence that exposure was once commonly practiced in India. In an extensive survey of the burial practices of ancient India, the archaeologist Purushottam Singh found evidence for a number of different methods of disposal of the dead – one of which was "fractional burial," in which a body was exposed to vultures and other scavengers, after which the skull and some other bones were collected and buried. This practice appears to have been most common in the western areas of Sindh and Baluchistan, where the bones were placed in stone cairns;

but more particularly in South India, where Singh found that "post-exarnation burial is by far the commonest mode" that was practiced by the inhabitants of the area.<sup>[100]</sup> In South India's megalithic period, from the first millennium BCE to the early first millennium CE, contemporary literature indicates that the five classes of local people each practiced different funerals.<sup>[101]</sup> Considering the frequency of fractional burial, it was probably favored by the common people of the laborer class. The best archaeological evidence for the practice is found at the Brahmagir site near the city of Mysore. Brahmagir contains a number of flat stone circles, 20 to 30 feet (6.3 to 9.3 m) wide, surrounding 8-foot (2.5 m) deep pits. Excavation of these pits has revealed many funerary offerings, but no intact human bones; and the pits are rare compared to the many true graves found at the same site. It's thought that the stone circles served as sites of exposure, and that bodies were either placed in the "mescerating pits" to be defleshed by vultures and other scavengers, or that wooden biers were erected over the pits and that bodies were placed upon the biers to meet the same fate. Once the bodies were skeletonized, selected bones were collected and placed in megaliths, communal stone tombs. The British archaeologist Mortimer Wheeler dubbed the pits "inverted towers of silence," likening them in function if not form to the raised stone structures in which modern Zoroastrians expose their dead to vultures.<sup>[102]</sup> No archaeological traces of any exposure platforms have been discovered, though that isn't surprising if they were temporary wooden structures built in a wet tropical climate.

Aside from the beholding rituals of the Zoroastrian Parsis (which will be examined later in this chapter), exposure funerals are virtually extinct in modern India, though they may persist among some small ethnic groups in isolated areas. Most of the Naga people of northeastern India bury their dead intact; but as recently as the 1970s, one tribe, the Konyak Nagas, instead exposed their dead in open coffins, which were placed on raised bamboo platforms for airborne scavengers to deal with. As in ancient South India, some of the defleshed bones were later collected and buried.<sup>[103]</sup> The reason why exposure was largely abandoned in favor of other methods of disposal in the first millennium CE may be due in part to changes in religious beliefs at that time; but it can also be attributed to India's colossal human population, which has had recurring problems throughout history with plagues and famines. In the wake of such disasters, the crucial difficulty with the practice of exposure was the lack of control inherent in depending on wild animals to show up at a certain time and place, and in sufficient numbers, to do what was expected of them. If many people died from plague or famine, more graves could be dug, more or larger funeral pyres could be built, and the Ganges continued to flow regardless of how many bodies were cast into it. But the vultures came and went of their own free will, and though they were virtually omnipresent in most of India, there could never be any guarantee that there would be enough of them precisely when huge numbers of carrion birds were most needed.

Today, the most common funerary option for Hindus is cremation, although floating the dead in the sacred waters of the Ganges is also favored (and the latter might follow the former, if the flames fail to completely consume a body). Either option might leave edible remains, and thus provide a meal for vultures, though this possibility doesn't seem to greatly trouble the survivors; and unusual situations may still provide vultures with plentiful human food. In June of 1806, a British missionary named Claudius Buchanan visited a large Hindu festival, a *Jatra*, in Orissa State. The festival drew thousands of pilgrims from all over North India, many of whom were poor, hungry, or in failing health, and would not survive to make a return journey. As a result, the festivities were also frequented by scavengers. Buchanan wrote that, "The dogs, jackals, and vultures, seem to live there on human prey," and found that, "The vultures exhibit a shocking *tameness*. The obscene animals will not leave the body sometimes till we come close to them." The bodies of pilgrims who died were not

cremated, but rather exposed in a spot “a little way out of the town, called by the English, the Golgotha . . . where dogs and vultures are ever seen.” Although he professed disgust at the sight, Buchanan was perfectly willing to describe the finer points of the scavengers’ feeding for his readers:

The vultures generally find out the prey first and begin with the intestines; for the flesh of the body is too firm for their beaks immediately after death. But the dogs soon receive notice of the circumstance, generally from seeing the . . . corpse-carriers returning from the place. On the approach of the dogs, the vultures retire a few yards, and wait till the body be sufficiently torn for easy deglutition. The vultures and dogs often feed together, and sometimes begin their attack before the pilgrim be quite dead.<sup>[104]</sup>

With some simplification, it can be said that the people of India accept vultures eating human corpses as a natural state of affairs, unlike much of the rest of the world. But that doesn’t mean that such a fate is desired or sought out, and there certainly was no overall consensus among Indians regarding the metaphysical consequences of vultures consuming people. In the 1950s, the folklorist Verrier Elwin recorded a myth from Orissa, which explained that the custom of burning the dead originated specifically because vultures ate human corpses. As a result of this consumption, souls could not be reborn as children, nor could they become the ancestral spirits that guided and aided the living. Thus the human population steadily decreased. Upon realizing this, the chief spirit of the underworld rushed to site of the very next death, and ordered the people to gather wood and burn the body outside of the village. Further, he decreed that from then on, bodies should be burned if possible, and buried if not – but never left to vultures.<sup>[105]</sup>

The forest-dwelling Baiga tribe of India’s Central Provinces maintained otherwise. They told a story of a Baiga boy who found himself at a battlefield strewn with the corpses of many slain warriors. The boy hid as a vulture named Rai Gidal (probably the Pondicherry Vulture) flew down to the field. Oddly, the vulture ignored the many fresh, juicy bodies that were available, and searched until she found a single old and very rotten corpse, which she devoured. When the boy approached the vulture and asked her why she had ignored the other dead, she beckoned him to come closer and look at the battlefield through her wing. He did so, and saw the countless bodies – but they were all of animals, from pigs to donkeys to frogs. He didn’t see the corpse of a single human. Rai Gidal explained to him that she only ate the bodies of those who were destined to be reborn as humans in the next life, and so the humans-cum-animals strewing the battlefield would not fill her stomach. She further provided the boy with a wing feather, which allowed him to see the true, often bestial nature of other people, whether they were dead or alive.<sup>[106]</sup>

Still other Indians believed that, to the contrary, vultures might refuse to eat the body of a *righteous* person, just as that great vulturine hero Garuda would. A folktale of the Balaghat District illustrates this belief nicely. It tells of a hero named Hirakhan Kshattri, who was unjustly killed by an army jealous of his successes. When Hirakhan’s wife found his body, she mourned over it, then built a pyre and began to burn it. A vulture lived nearby, watching over two chicks whom she was accustomed to feed every day with the leg of an Elephant. This time, the mother vulture brought the leg of a man that she had pulled from a funeral pyre; but her normally voracious children refused to devour the limb, saying that it had belonged to a man who had been killed for no reason. Upon hearing this, the vulture flew back to Hirakhan’s pyre, pulled his body from the flames, reattached his leg (presumably), and restored his life.<sup>[107]</sup> The implication of the story is a clever one: if vultures will not eat a wrongfully killed person, then any person that they do eat must have been *rightfully* killed.

While vultures are very conspicuous in the lives and traditions of the people of India, they seem to be conspicuously absent from those of the inhabitants of the *other* cultural colossus of the Far

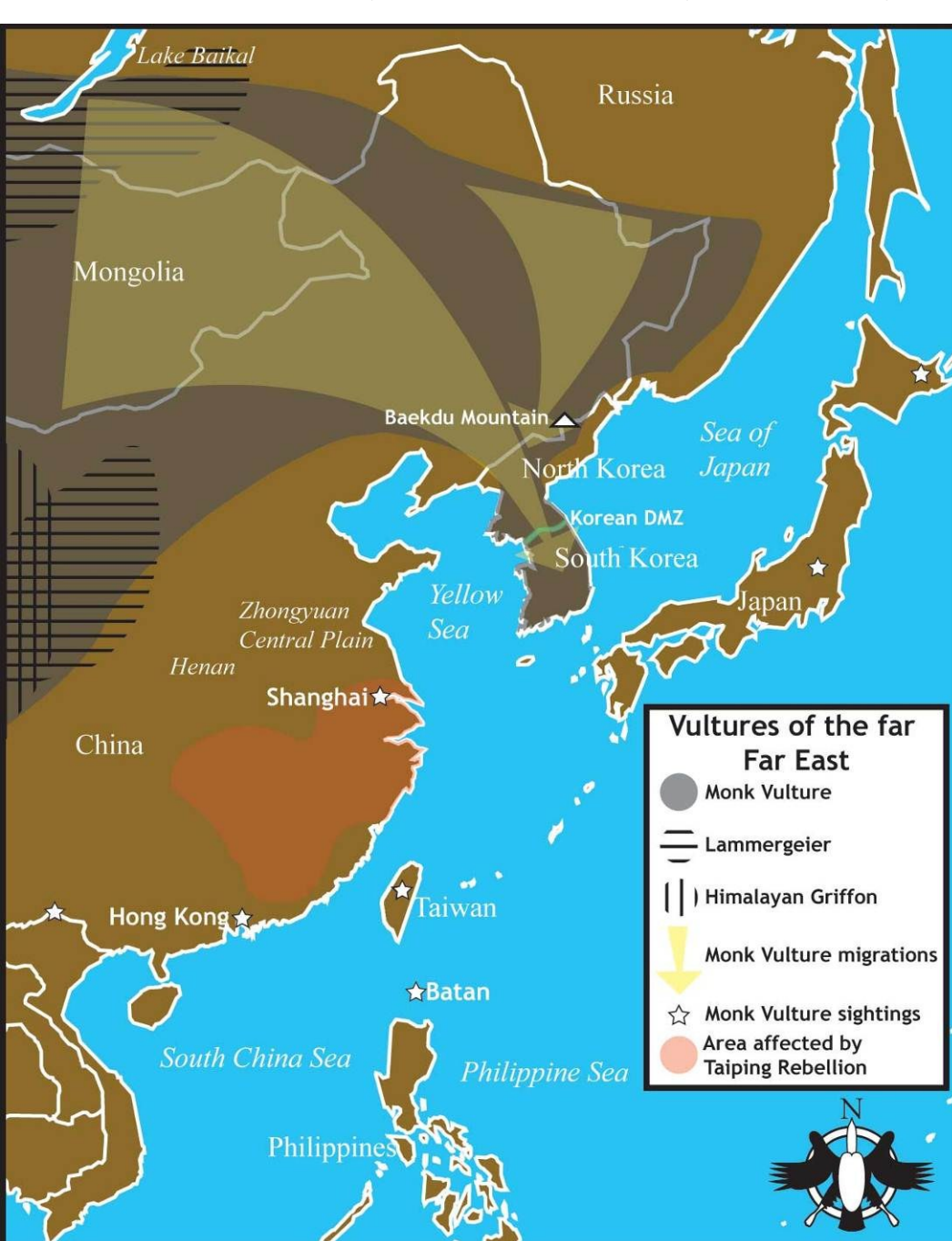
East. China's civilization was (and largely still is) centered in its eastern regions, in lowland, well-watered areas like the Zhongyuan Central Plain that were once thickly forested and that have been heavily farmed and urbanized for many centuries; not exactly prime vulture habitat, though the birds could still be attracted to the area by a superabundance of carrion. During China's Taiping Rebellion of 1850-64, which resulted in horrific casualties among soldiers and civilians alike, a number of Monk Vultures appeared in the Yangtze River valley of eastern China, between the cities of Nanjing and Shanghai. These enterprising birds were thought to have been attracted to the area by the countless human corpses left unburied by the war.<sup>[108]</sup> The Taiping rebels were very generous to the Vultures, as they made a habit of beheading both captured enemies and members of their own ranks who were accused of misconduct, then leaving the bodies for scavengers.<sup>[109]</sup> It's not known from where these birds traveled to feast on the aftermath of the Rebellion, but the most likely place of origin was somewhere in Mongolia, hundreds of miles to the north. Robert Swinhoe, a British military officer stationed in China during the later years of the Rebellion, recorded the shooting one of these well-traveled Monk Vultures "off one of the islands in the Zhoushan archipelago," barely a hundred miles (160 km) south of Shanghai. Swinhoe noted that his victim was male, "and a female, probably his mate, was shot off an island not far from the mouth of the Shanghai [Yangtze] River." It was obvious to Swinhoe that these birds were not at all familiar to the local people, and therefore must have been recent arrivals to the area. He wrote, "The Chinese are not acquainted with this bird; they call it the *Hai Laoying*, or Sea Kite," and added that he could "find no word in Chinese to express 'Vulture'".<sup>[110]</sup>

In 1938, the British naturalist G. A. C. Herklots recorded another peculiar bird sighting in the New Territories region of Hong Kong; it seems that three naval officers spotted "what appeared to be a magpie perched on a boulder some four feet [1.2 m] high" on a hillside about a hundred yards away. When the "boulder" spread a pair of massive wings and took to the air, the officers realized that it was in fact a vulture; the object that they had mistaken for a magpie was actually the mottled, dark-and-pale head of an adult Monk Vulture. Herklots mentioned that at the initial sight of this creature, a "local Chinese who was with the party shewed signs of uneasiness if not fear and remarked that a very large bird had been seen in the district which had alarmed the people." This reaction is worth pondering, because this vulture, like the vultures seen along the Yangtze more than 70 years earlier, was probably attracted to the area by nearby warfare. China was at war with Japan at the time, and according to Herklots, at the time of this sighting battles were raging just a few miles away, on the other side of Hong Kong's border.<sup>[111]</sup> For the Chinese to become alarmed at the sight of Monk Vultures would be perfectly reasonable if the *Hai Laoying* appeared in southern or eastern China primarily during periods of large-scale strife (of which China has had many).



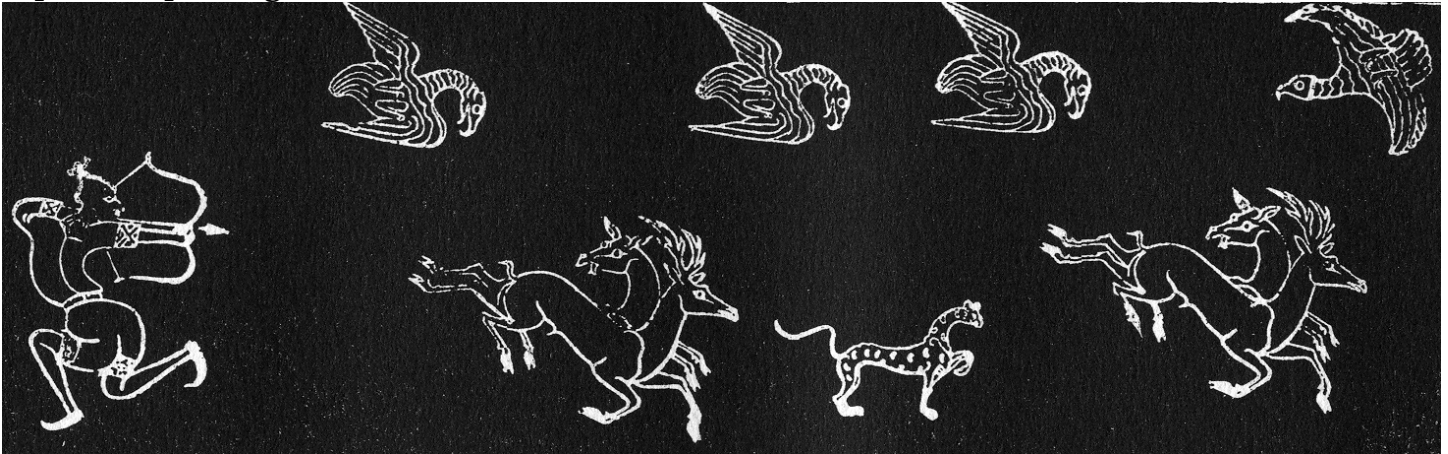
War-chasing vagrants aside, the most significant vulture population within the borders of China proper was that of Yunnan, a mountainous province bordering Burma and Indochina, which had a strong White-rumped Vulture population with smaller numbers of other species until the mid-20th century.<sup>[112]</sup> Aside from that, there are occasional Chinese artistic and literary references to Monk Vultures and Lammergeiers, both of which sometimes ventured far to the south or east of their usual haunts – and were very conspicuous when they did so, as they were far larger than any of the local

birds of prey. The Han Chinese were at least hazily aware of the Lammergeier and its habits; as already mentioned, reports of a horned, human-eating “evil eagle” were found in some ancient bestiaries, and among the people of Beijing in the 19<sup>th</sup> century, it was known as *Soa kou tiao*, “Bone-swallowing eagle.” Its tail feathers were reportedly used to make courtly hand fans,<sup>[113]</sup> though there seem to be no examples of such that have survived to the present. There's also a 19th-century report of a stuffed Lammergeier seen as an exhibit in a Beijing museum that was shot “in the mountains west of that city”;<sup>[114]</sup> but the Monks were the more venturesome of the two species, having been recorded not just in the Yangtze Valley and Hong Kong, but as far afield as the Sino-Vietnamese border, in the Malay Peninsula, and even on the island of Taiwan<sup>[115]</sup> and various parts of Japan.<sup>[116]</sup> Remarkably, in 2002, a Monk was captured alive on Batan Island in the Philippines, some



190 km (119 mi) south of Taiwan – though this bird may have received assistance in its journey from the winds of a typhoon.<sup>[117]</sup> While acknowledging that many appearances by vultures in these areas have probably gone unrecorded, it still seems doubtful that the average number of visits by the birds to any one of them amounts to more than an individual or two per every few years. In other words, vultures were residents of south and eastern China and points beyond only in the same sense that short-period comets are residents of the night sky.

Still, there's always something to be said for the allure of the exotic, and Monk Vultures, [Himalayan Griffons](#), and [Lammergeiers](#) have all appeared in a small-but-notable corpus of work by several 20<sup>th</sup>-century Chinese painters. The most prolific of the Chinese vulture painters, [Pan Tianshou](#), depicted Monk Vultures in at least half a dozen different paintings, typically as single birds or pairs perched on rocks or pine trees, looking aloof and formidable. In the recent book *Art and China's Revolution*, Pan Tianshou's son Pan Gongkai recalled that his father had painted nature subjects of all sorts since childhood, and developed an especial artistic fascination for eagles; "but when, at the age of thirty, he saw a bird of prey even more fierce than the eagle – the [Monk] vulture – on display at the Gushan Exposition in Hangzhou, he began to paint vultures." Pan Gongkai, a painter and art historian himself, noted that although birds of prey in general "symbolize the power of the human spirit and the noble character of art" in China's culture, the vulture was conspicuously absent from classical art - "because it is extremely rare on the central China plain populated by the ancients, it was never depicted in paintings."<sup>[118]</sup>



There may be a few little-known exceptions to that statement. In east-central China (the Henan Province, to be specific), there are tile paintings inside tombs dating from the 5<sup>th</sup> to 3<sup>rd</sup> centuries BCE,<sup>[119]</sup> one of which (above) depicts several large, hook-billed birds hovering over a group of deer hunted by a bowman and a Leopard. In his study of the tombs, the archaeologist William Charles White suggested that the birds were falcons, but their great size, long necks, and elongated bills (not to mention their apparent close association with hunts, whether of humans or large carnivores) are much more indicative of vultures. These paintings may depict hunts that took place outside of China proper, where vultures were more common; or they may indicate that vultures were more frequently seen in China at the time. In lieu of any more evidence, it's impossible to say more about the significance of the paintings (detail, below), though they are reminders that vultures were not entirely unknown in classical China.



Much the same could be said of China's sometimes-vassal state of Korea; although, due to a quirk of migratory patterns, Monk Vultures are more familiar in Korea than in China proper. The Monks currently breed further north in Asia than any other vulture, in a broad swath from Kazakhstan to eastern Siberia, and most if not all of these northerly birds migrate during the winter. Studies of this migration have only just started, but so far it appears that many of the Monks don't merely fly south, which might bring them to China, but instead fly east-southeast into the Korean Peninsula. One young Monk tagged in Mongolia in



August 2006 turned up near Pusan, South Korea, the following March – a journey of about 1,200 miles (1,920 km)!<sup>[120]</sup> These Monks are the only vultures ever seen in Korea, aside from exceedingly rare wandering Lammergeiers<sup>[121]</sup> and a few recent Himalayan Griffons.<sup>[122]</sup> In the 1940s, prior to the war that split the peninsula between North and South Korea, it was noted that the Monk Vulture was “a rare visitor to Korea, but of too frequent occurrence to be regarded as a straggler.” Some of the vultures were thought to live year-round in the vicinity of Baekdu Mountain, the highest peak on the peninsula, which today is shared between North Korea and China.<sup>[123]</sup> Vultures, almost certainly of the Monk species, were seen attending early battles of the Korean War (1950-53) in the far south of the peninsula,<sup>[124]</sup> and the ecological legacy of that war, the [Korean Demilitarized Zone](#) (DMZ) that straddles the hostile and heavily guarded border between North and South Korea, has proven beneficial to the Vultures as well. Along with a surprising variety of other large birds, Monks have been seen regularly by biological surveyors in the DMZ.<sup>[125]</sup> Their numbers have been estimated at “about 1,000”<sup>[126]</sup> though it isn’t clear whether some or all of these Vultures are residents in the DMZ, or are seasonal visitors stopping there during their migrations. As the area has been off-limits to most people and virtually all development for over half a century, it’s now considered the single most naturally pristine area on the peninsula, as well as one of the most functionally intact temperate ecosystems in the world. The DMZ certainly provides plenty of food for the Monk Vultures, with large mammals like Goral and Wild Boar (and, reputedly, Tigers) thriving inside the zone.

Vultures were far more conspicuous and charismatic figures in areas that, while influenced by Chinese culture, and in some cases later annexed by China, were biologically and culturally distinct from it; areas like the birthplace of the second world religion of the Far East, which grew out of the teachings of a disaffected prince who was born in the foothills of the Himalayas in the 6th century BCE. Siddhartha Gautama, or the Shakyamuni Buddha, as the world would come to know him, preached a creed that was both similar and dissimilar to Hinduism. On the former side, Buddhists believe in reincarnation, and commonly revere gurus and holy men. But Buddha and his followers disavowed the caste system (which immediately gained converts to the new faith from the ranks of the untouchables), much of the ritual that permeates Hinduism, and belief in any supreme god. One of the most notable innovations of Buddhism soon began to permeate Hindu belief as well: the concept of *ahimsa*, “non-injury,” which stipulated respect and kindness towards animals, and frowned upon killing any creature for any reason in most situations. To this day, adherents of these two faiths, as well as of related religions like Jainism, are widely renowned for their (relative) kindness and compassion towards non-human creatures.

In eastern Tibet, where some of the most faithful adherents of *ahimsa* dwelled, the spectacle of circling vultures was a much longed-for sight. The birds often revealed the locations of wild animals that had been killed by natural causes; and although *ahimsa* frowned upon killing, it said nothing specific against eating meat, or stealing the kill of a predator. In his book *Buddha’s Warriors*, Mikel Dunham interviewed a man from the Tibetan province of Kham, who recalled just how important the vultures were during his childhood in the 1940s:

As Buddhists, my family didn’t kill animals. Meat was therefore not a normal part of our diet. But if a predator killed a deer or wild goat, and vultures gave the location away, the villagers would drop whatever they were doing and run to try to retrieve the dead animal before it was eaten. Whoever found or got to the animal first got to keep the skin for himself. But it was understood that the meat would be shared among all the villagers.<sup>[127]</sup>

Vultures were not excepted from this general Buddhist goodwill; although, along with other scavenging and predatory birds like ravens, hawks, crows, and owls, they were often considered to be outcaste birds who served as messengers or emissaries for wrathful deities.<sup>[128]</sup> Buddhists have always been firm believers in stages of spiritual growth; to them, the vultures represent the stage that the Tibetans call *bškyed rim*, the "generation stage" of the process,<sup>[129]</sup> where the shells of ordinary appearances and conceptions are devoured, stripping the skin of illusion and the flesh of misperception away so that the bones of eternal truth are bared for all to see. On a more mundane level, Tibetans required vulture feathers for making arrows. Tibetan arrows were used for both hunting and for rituals, in which magical arrows were used to destroy evil spirits. Both types of arrow required large, strong feathers to fly straight and true; these steering feathers were usually made from the tail feathers of vultures which were cut lengthwise and glued or tied to the arrow's shaft.<sup>[130]</sup> *Thang-dkar* (Lammergeier) feathers were especially favored, as they symbolized enlightenment of body, mind and speech.<sup>[131]</sup> In both pre- and post-Buddhist Tibetan spiritual practice rituals, Lammergeier feathers were also used to make ritual headdresses (just as in ancient Persia), which were worn by spirit-mediums, rulers, and other persons of distinction.<sup>[132]</sup> This headgear was important and valuable enough that a plumed headdress was sometimes passed down from one generation of spirit-mediums to another.<sup>[133]</sup> Such feathers perched on a person's head bestowed fortune upon that person,<sup>[134]</sup> and signified that they were unusually wise;<sup>[135]</sup> and when worn by a spirit-medium, the white plumes symbolized the great protective power of the medium, just as the vulture was the highest-flying, most powerful of birds, with the power to conquer all evil.<sup>[136]</sup> In recent years, it's been averred that "many" vultures are shot or trapped in Tibet for the feather trade, though it's unclear if the Tibetans themselves are responsible for this.<sup>[137]</sup> Vulture feathers were also used to construct "spirit-catchers," which subdued harmful spirits<sup>[138]</sup> - a rather ironic use of the plumage, since vultures themselves were sometimes presented as harmful spirits.

There are also numerous examples in Buddhist mythology of evil beings assuming the forms of vultures, the better to threaten or harm their enemies. Buddhist tradition holds that one of Buddha's disciples, the monk Ânanda, was once meditating on a rocky hill near the city of Benares in northern India, when Mâra, the Evil One, assumed the form of a vulture in order to make Ânanda fear him and interrupt his meditation. But from far away, Buddha thrust his hand into the rock of the hill, tunneling a cavern through it, and gently stroked Ânanda's shoulder, thus assuaging his disciple's fear and ensuring that his mediation would remain uninterrupted. (Ironically, Ânanda became a vulture king in one of his later incarnations.) Buddha went on to deliver many of his sermons from atop the hill, among them the teachings that became the *Lotus Sutra*, believed to his most important lessons by many Buddhists.<sup>[139]</sup> The hill upon which Ânanda's meditation took place became known as *Gridhrakuta*, "Vulture Peak." Despite its fame and prominence in Buddhist tradition, the hill itself is rather innocuous; as the current Dalai Lama put it in a lecture:

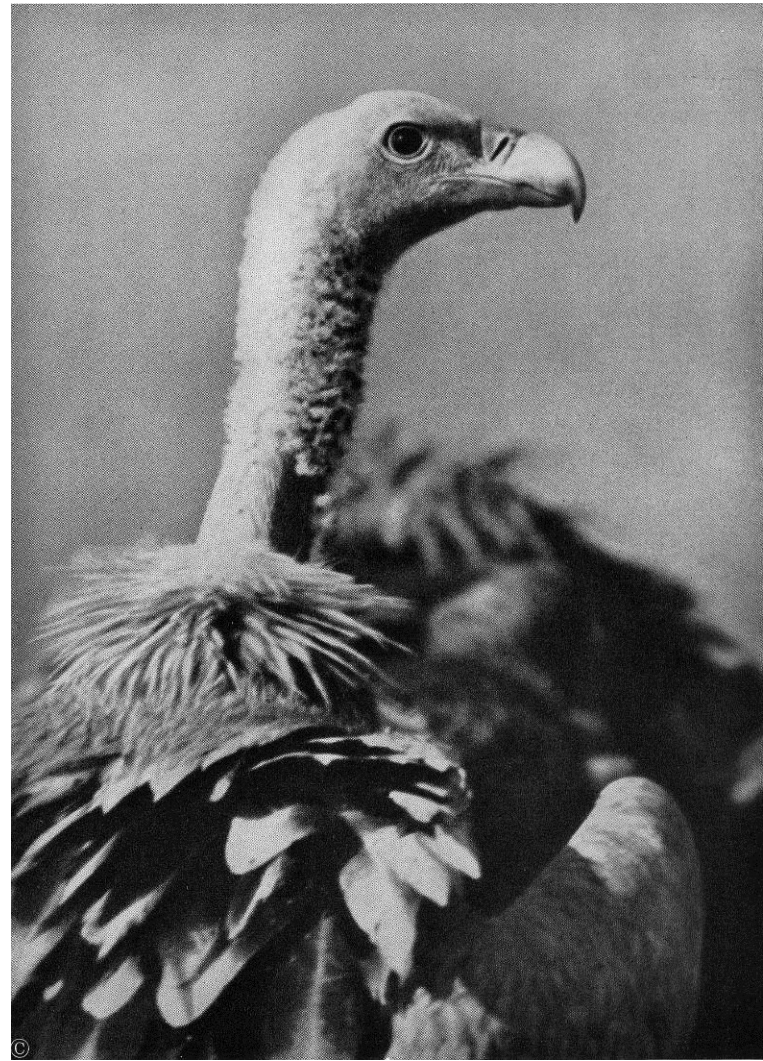
Buddha set forth the middle turning of the wheel of doctrine at Vulture Peak . . . and in those sūtras it is indicated that a great many trainees - humans, gods, demi-gods, and so forth—were present. However, when you go to Vulture Peak itself, it is a fact that only about ten, or a maximum of fifteen, people could fit on the tiny hill that is the actual Vulture Peak perceptible with the eye. Hence, this is a case of an appearance to trainees of pure karma; such appears to their more pure perspective. [Translated by Jeffrey Hopkins]<sup>[140]</sup>

There are at least eight or nine different explanations for the origin of the hill's name (not all of which are mutually exclusive), including that the hill looks like a mass or pile of vultures, that one or



more of its rocky prominences look like a vulture's bill, that vultures are or were exceptionally abundant on its slopes, or even that Jatayu, the vulture king of the *Ramayana*, was born on the hill. The Buddha's sermons from the peak are often represented in Buddhist art by a depiction of Gautama seated on a throne, entirely surrounded by vultures.<sup>[141]</sup> Even today, the hill is a favored retreat for ascetics, and it is said that vultures are still seen soaring along its slopes.<sup>[142]</sup>

The higher mountains of the Far East are home to a thriving population of vultures, making up one of the most intact and undisturbed vulture guilds in the world. These peaks occupy a broad arc of the region, from the Himalayas that mark the boreal limits of the Indian subcontinent in the south, to the Altai in the north that peter out into the deserts and steppes of Mongolia and southern Siberia. The Himalayan Griffon (right) or *Kumai* ("Snow Vulture" in Kirghiz) is unique to the Far Eastern mountains, and is likely descended from a population of Eurasian Griffons that colonized the peaks during the past few million years, becoming larger and paler in the process. According to some of the pre-Buddhist Tibetan religious texts, the latter trait came about because the Griffon served as an extension of the divine altar for the primal god, gSal-dbang. When the Griffon came to earth to serve gSal-dbang and all living things, the god's divine stone was kept atop its head, thus turning it a pure white; and the felt-carpeted altar beneath the bird similarly purified the plumage of its belly. The Griffon's bluish-black tail, on the other hand, was ascribed to its use as a receptacle for the divine arrow; and its often-prominent neck pouch (crop) was where the divine barley, one of Tibet's most important grains, was kept.<sup>[143]</sup>



As befits its pallid plumage, the Himalayan Griffon apparently prefers the snowy peaks of Tibet and the great arc of Central Asian mountains to the lower steppes and foothills; but there's little reason for it to fly to the lowlands, when it's such a superlative scavenger among its high places, as much a defining feature of its mountains as the Andean Condor is of its South American peaks. Even European travelers who harbored nothing but scorn for most vultures idolized this Griffon, proclaiming it to be a "grand bird . . . for grand it is apart from its repulsive habit of feeding upon carrion,"<sup>[144]</sup> and writing of "the great khaki-coloured bird which may be seen at all hours wheeling and soaring in the sky often at immense heights, or flying fairly low over the hill-side, travelling straight and fast with a tearing noise. . . . the whole bird irresistibly recalls the passage of an airplane."<sup>[145]</sup> The ornithologists Salim Ali and S. Dillon Ripley hardly had a rosy view of the scavenging habit, but they still penned this breathless description of Himalayan Griffons plying their trade for their *Handbook of the Birds of India and Pakistan*:



Normally seen . . . sailing majestically on outspread motionless wings over mountaintop and valley, or sweeping round the contours with astonishing speed and grace, scouting for food. Or it rises on the thermals to immense heights, circling for hours together in the heavens. . . . The way in which a rabble of 10 to 20 of the great birds will materialize at a carcass on a remote mountain pass from out of the clear blue sky, and the speed and thoroughness with which they will demolish it, is a source of never-failing wonderment.<sup>[146]</sup>

Speed and thoroughness, indeed; a "rabble" of Himalayan Griffons can consume an entire Yak in two hours, leaving behind nothing but the skeleton and the hide, intact save for the vultures' entry hole in the belly.<sup>[147]</sup> Upon observing the great numbers of Griffons in China's Gansu Province, the 19<sup>th</sup>-century Russian explorer Nikolay Prejevalsky wondered how the enormous birds were able to feed themselves, "especially as the Mongols, Tangutans [Tibetans], and Chinese often eat carrion themselves, and the vultures would have but a small share of the dead domestic cattle." He concluded that the Griffons "take very distant flights. . . . A flight of a few hundred miles is no exertion to this bird, which sails all day long beneath the clouds almost without flapping its wings."<sup>[148]</sup>



Although Himalayan Griffons and other vultures were largely held sacred in Buddhist-era Tibet, and were probably freer from the threats of hunting and trapping than any other vultures in the world, this wasn't quite true in pre-Buddhist Tibet. Until the native Bon religion was largely supplanted by Buddhism in the 11<sup>th</sup> century CE, Tibetans were not at all averse to killing animals, including vultures, and using their body parts in rituals. An important accoutrement used in funerals was

the *bya-gshog phyag-cha*, the "bird wing hand-tool." This was a powerful implement used to attack and dispel the nefarious demons that attempted to prey on the dead, and as a sort of traveling aid to help the consciousness of the dead find its way in the great beyond. It appears that there were a great many myths and practices surrounding the hand-tool in the heyday of the Bon, some of which were recorded for posterity in ritual texts. Once a vulture's wing had been obtained, it was ritually "powered up" to be usable, by ornamenting it with things like needles, incense, mirrors and gemstones.<sup>[149]</sup> After this was done (as a Bon text put it), "The vulture wing of manifestation has excellent qualities. It is a sign of the unchanging *bon-nyid* (reality as it is). . . . It is a sign of the definitive cutting of the chain of death and rebirth. It is the miraculous wing of love. It positively suppresses hell."<sup>[150]</sup>

Many Bon texts relate how vulture parts were used for various ceremonial and religious purposes. Bon priests wore ceremonial dress consisting of vulture robes (probably more-or-less intact Griffon skins with the feathers still attached) trimmed with Tiger fur, and topped with horned hats or helmets.<sup>[151]</sup> One text recounts that this attire was gifted to the Bon-po priesthood by the king of Tibet, in gratitude to two priests who empowered his army, and suppressed the killing power of his enemies:

As a result [the king of Tibet] was pleased, so at that time, the 'three vultures' on which turquoise horns were erected and the white female vulture robe (*thul-pa*) on which a tiger [skin] collar and trim were attached were conferred. . . . from that time the Bon-po began wearing the bird hat and bird robe.<sup>[152]</sup>  
[Translated by John Vincent Bellezza]

Outside of the priesthood, such robes were probably worn only for religious rituals, or to indicate a person's high status; but one folktale tells of a hero adopted the innovative subterfuge of wearing a vulture's skin and wings in order to sneak into a castle, "On account of there being a vulture nest opposite the castle."<sup>[153]</sup>

The Griffons of Tibet are commonly accompanied by [Lammergeiers](#). This species is scarce throughout most of its vast range, but it was said to be abundant in Tibet; especially near towns like Lhasa, where the wildest-looking of all raptors could become half-tame, lounging around garbage dumps, swooping to the ground to pick up scraps or bones, and following ploughs in order to eat the grubs that were turned up by them. During the British military expedition to Tibet's capital of Lhasa in 1904, the journalist Perceval Landon found that Lammergeiers along with Ravens were "almost ubiquitous throughout Southern Tibet; they appear to be quite impervious to the rigors of the climate, and keep fat and lively under conditions that would be fatal to other birds of their great bulk."<sup>[154]</sup> European travelers in the Far East frequently remarked that the Lammergeiers found there were far less timid in the presence of humans and domestic animals than the nearly-extirpated and extremely wary birds back home, because the Asian birds had never been excessively hunted or otherwise persecuted.<sup>[155]</sup> In the late 19th century, British observers noted that near Abbotabad in what is now northern Pakistan, the local Lammergeiers, though usually shy, would "often collect in numbers round the military hill-camps to feed on the offal," and even "became quite accustomed to the shooting on a rifle-range, and would approach close to the men."<sup>[156]</sup> These great bearded birds became a familiar sight around the camps of the British Tibetan expedition, gathering in hundreds to feast on offal and the army's many dead pack animals.<sup>[157]</sup> The British ornithologist Thomas Claverhill Jerdon remarked that in northern India, Lammergeiers were "most numerous where there are convalescent depots of European troops stationed, being attracted by the greater abundance of offal and refuse in such places, which certainly form the chief part of the food of this Vulture. . . . it is very common, and quite fearless of man, often passing overhead within a few yards or alighting on the ground not far from a road." One ornithologist even claimed to have "known it . . . to feed on human ordure"<sup>[158]</sup> - certainly the apotheosis of commensalism, and an interesting convergence in diet with the Lammergeier's closest relative, the Egyptian Vulture. Still, the prevailing feeling seemed to be that, "with all, the Lämmergeier is a noble-looking bird, either when feeding in camp, or hunting for prey on the more distant mountains."<sup>[159]</sup>

Even more than the Himalayan Griffon, Lammergeiers have always been thought of as inhabitants of the rarified air at great altitudes. Along with the crow-like Mountain Choughs, these birds were a familiar sight to climbers seeking to scale the great peaks of the Himalayas. The British expedition to climb Mt. Everest in 1922 ultimately failed, but a sort of ornithological consolation prize was provided by the observations of the expedition's medical officer. Among the many birds he watched during the climb was a Lammergeier, spotted "high over" the climbing party, which was then at an altitude of 7,315 meters, or about 24,000 feet.<sup>[160]</sup> In his book *Mountain Wildlife*, Richard Perry postulated that, "from time to time, no doubt, one has settled on the summit of Everest and gazed with its fierce eyes over the grey-brown vales of Tibet that rolled away in wave after wave."<sup>[161]</sup> It goes without saying that in those grey-brown vales, among the highest, harshest peaks on Earth, the local

people developed familiarity with the Lammergeiers to a high degree – and did they ever. As in ancient Persia, it seems that in Tibet the mythological imprint of the golden vulture was too large to be confined within a single being, and so it was split in two. The Lammergeier in the (semi-) literal sense was known as the *Gho* (in the south, especially around Lhasa) or the *Thang-dkar* (in the north), and was the undisputed brave king of birds.<sup>[162]</sup> The *Thang-dkar* could manifest itself as a deity, particularly as a protector of the spirit-mediums that are so vital to Tibetan spirituality.<sup>[161]</sup> Tibetan deities were often envisioned as real animals with supernatural traits – like iron claws, enormous size, or absurd coloring – so it isn't surprising that the Lammergeier was often interpreted as such.

A more fantastic interpretation of the Lammergeier and its powers was found in the *Khyung* or *Mkhal'ding*, the “sky-soaring horned eagle” that figures prominently in so many stories. As with the Simurgh in Persia and Garuda in India, the Khyung seems like a being closer to a deity than a mere bird. In Tibet's pre-Buddhist Bon religion, the Khyung was a deity - or rather, deities, for there were many different Khyungs. In his recent book *Spirit-mediums, Sacred Mountains and Related Bon Textual Traditions in Upper Tibet*, John Vincent Bellezza translated and interpreted many venerable Tibetan oral traditions and texts, including one untitled Bon ritual text describing the five orders of the Khyung:

Namely, these are called the angry dBal-gsas in the middle, Khyung-nag ral-can (Crested Black Khyung); the angry Lha-rgod in the east, Ka-ru-na; the angry gTso-mchog in the north, dBal-khyung me'I ral-can (Extremely Wrathful Khyung with the Fiery Crest); the angry character in the west, Khyung-dmar chu-srin ral-pa-can (Red Khyung with the Water Monster Crest); and the angry black *khyung* of the south who has wings of razor sharp swords.<sup>[162]</sup> [Translated by John Vincent Bellezza]

There was a remarkable disparity of appearance reported in the different Khyungs; some said that there were distinct black, white, and red forms of the divine bird, while other Khyungs were described as “golden” or even “conch-white” in color.<sup>[163]</sup> The wide range of colors among the different Khyungs was partly grounded in reality. Due largely to their habit of dusting their feathers with rust, adult Lammergeiers vary more in individual appearance than just about any other birds. Some individuals may bear a vivid reddish-orange color (hence having a “Fiery Crest”), others may be more buff-yellow or golden, and a few birds may even lack any rust coloring at all, giving them a monochromatic plumage of black, grey, and white. Additionally, young Lammergeiers are very different in appearance from adult birds; not only are their wings and tails shorter and broader and their beards conspicuously absent, they also wear almost entirely black and brown plumage with little discernible rust or white coloring for the first few years of their lives. If these visually distinct birds also exhibited distinct behavior - for instance, if some Lammergeiers attacked live prey, perhaps with “wings of razor sharp swords,” while the majority didn't – they could easily have been interpreted as a different class of Khyung.

Despite the consistently angry deportment of the Khyungs, all Tibetans were in agreement as to the benevolent power of these horned, feathered riders of the winds. Just like the *Thang-dkar*, the Khyung was a protective, helpful bringer of good fortune,<sup>[164]</sup> with such powers of healing that even small brass figurines of the bird (left) could make a vital difference in healing rituals.<sup>[165]</sup> Mountain gods could and often did manifest themselves in the form of





Khyungs, and the horned birds were commonly found in divine retinues.<sup>[166]</sup> Another Bon text envisions the Lammergeier's divine form as a figure reminiscent of the *gourral*, the pilgrims' light-bringer:

[A]t the margin of light and darkness is mKha' lding gser gyi spyen-mig (Sky-Soarer Golden Eyes), who pervades light and darkness everywhere without distinction. He resides, dwelling in the realm of darkness. He beholds, seeing the lamp of light. He possesses, owning both light and darkness. Today, upon this divine foundation, I call the *Iha*, Sky-Soarer Golden Eyes.<sup>[167]</sup> [Translated by John Vincent Bellezza]

Various texts and spirit-mediums further maintain that a Khyung can control rainfall and other forms of precipitation (by dominating the serpentine water spirits that dwell in the earth),<sup>[168]</sup> that the deified spirits of ancestors will sometimes manifest as Khyungs and other raptors,<sup>[169]</sup> and even that iron Khyung heads and wings were used to decorate pre-Buddhist temples<sup>[170]</sup> and that the bird was used as a military insignia in pre-Buddhist armies.<sup>[171]</sup> It's scarcely an overstatement to say that the Lammergeier was Tibet's national bird, tutelary deity, surgeon general, astrologer, and meteorologist, all rolled into one.

Out of all of the Lammergeier's peculiar traits, its "horns" seem to have had the greatest significance for the Tibetans. The horns of the Khyung and many other creatures - real, semi-mythical, and wholly mythical - had deep significance in the Bon religion that's far too esoteric and complex to explain here; but, broadly speaking, horns were implements of masculine power that allowed their bearers to control or suppress evil and utilize supernatural abilities of many kinds.<sup>[172]</sup> Pastoral Tibet was a livestock-centered society, in which many beliefs were attached to individual domestic animals - particularly if they were unusually colored, large, or otherwise conspicuous - and especially to their horns, which are sometimes preserved for many years after an animal's death as holy relics. As the horns of the Khyung's model, the Lammergeier, are rather more ethereal than corporeal, people who wished to possess them had to find another way to do so. It appears that in at least some cases, Lammergeiers provided this service as well, for Lammergeier wings could be made into Khyung horns.

One Bon text includes a matter-of-fact description of how a "mischief-making father" set up a bird snare, baited with the "decayed corpse of a dog," and with it caught and killed three different Lammergeiers: a black white, a white one, and a yellow one. The man did this in order to obtain the vultures' wings for ritual use, though he seems to have been confused about which part of the wings was properly used for his purposes. He originally took the middle portions of the vultures' wings, but as they were inappropriate for his intended use, they soared out of his hands and into the sky of their own accord. The same thing happened when he attempted to power up the portions of the wings nearest the vultures' bodies. All that the man had left were the vultures' "hands," the portions of the wings including the finger-like primary feathers. Fortunately, a knowledgeable Bon ritualist informed the man that these would be suitable for use as the Khyung horns worn by ritualists. The text seems to imply that participant in the Bon rituals wore Lammergeier primary feathers on their heads in order to symbolize the horns of the Khyung - an interesting parallel with the Lammergeier feathers worn by Persian kings in honor of *their* supernatural manifestation of the Lammergeier, [the Simurgh](#). And part of the Tibetans' reasoning for using Lammergeier wings thusly was that "there is no one that the lofty birds did not pass over or tread over"<sup>[173]</sup> - shades of [the Persian Huma and its shadow](#). During Tibet's pre-Buddhist period, the Bon kings sometimes possessed Khyung-horn headdresses, made of various precious materials, which may have signified that their bearers possessed the power of flight to the same degree as the high-soaring Khyung.<sup>[174]</sup>

And what a power that would have been – especially in the extremely mountainous terrain of northern Tibet, where taking a linear route from one point to another over land is usually impossible. But according to Tibetan lore, it wasn't only kings that could use the power of Lammergeiers to take to the skies; many other people could, too, and not just by fabricating the bird's "horns." A very old tale, discovered in a text dating from the early 11<sup>th</sup> century CE, tells of the unfortunate fate of the Mye-kru family of shepherds of northeastern Tibet. One day as the patriarch went to the high meadows to pasture his sheep he was waylaid by a dreadful figure: the black fiend-king, Dgu-lcogs, the most feared inhabitant of the mountains. The fiend killed the shepherd, ate his flesh raw, drank his blood, and took the flayed man's skin as a cloak, to deceive all who looked upon him into believing that he was the shepherd.

The fiend drove the sheep back to the shepherd's home, where his family was none the wiser – not even his wife, who happily spent the night with her husband's murderer. The next morning, the disguised fiend claimed that he was feeling too weary to drive out the sheep again, and asked the eldest daughter Tsen-hgi Rba-ga to take the animals out instead. When she reached the high pasture, far beyond any help, the fiend slew her, ate her flesh, and drank her blood. He had something special in mind for the young girl's heart; the fiend cut it from her chest and, returning home, presented it to Bzag-ste, who none the wiser cooked it into an herb-spiced dumpling and devoured it with relish. While pleased with this unexpected treat, Bzag-ste was worried about her daughter, who had yet to return from the pasture. The fiend-in-disguise assured her that Tsen-hgi was probably just dallying in the mountains, and suggested that the middle daughter, Tsen-hgi Rbag-zin, should pasture the sheep tomorrow.

Come morning, Rbag-zin did as her parents told; however, as she was herding the sheep up to the pasture, she fell in with a Kiang, a Tibetan Wild Ass, by the name of Little Tiger. Little Tiger was reputed far and wide to have unusual powers; and Rbag-zin soon learned just how unusual, as the animal told her of all that had transpired since the fiend arrived, and informed her (with no small amount of relish) that she would be the fiend's next victim. Terrified, Rbag-zin fled Little Tiger and her sheep and ran all the way home, breathlessly informing her mother of what she had learned. Bzag-ste, not fully believing what Little Tiger had said, suggested that the girl hide herself among the pigs that habitually lounged around the family's dunghill.

As twilight fell, Bzag-ste mused to herself that since she had slept with a fiend, and eaten the heart of her own daughter, she had irrevocably become a fiend as well. And so she fled that night to the land of the fiends, where she changed her name and lived as one of them ever after. The dawn of the next morning found Rbag-zin terrified, filthy, and all alone. And just then, the girl caught sight of an enormous shadow cast on the rocky ground, moving swiftly towards her.

Some time later, in a remote area far from human habitation, the Sky-marmot Heaven-queen was surveying her kingdom, as she customarily did, while grasping the tail of a flying *Thang-dkar*. As she scanned the lands below, the Heaven-queen was surprised to see someone – without wings, no less – standing on an outcrop so high that no land-bound creature should be able to reach it – except, perhaps, with the aid of a *Thang-dkar*, like that which now bore the Heaven-queen to the rock. She descended in all her splendor, with her eye-skin covering her nose, her nose-wrinkles covering her mouth, and her mouth-wrinkles covering her skin. Obviously knowing royalty when she saw it, the small figure hastily curtsied and saluted. The Heaven-queen saw few humans in her domain, and wasn't at all certain that the creature standing before her belonged to that mysterious race. "Child, where did you come from, and where are you going?" she inquired. "And are you a human or a dog?"

"I am only a humble human being," the small figure said. "Tsen-gi Rbag-zin, middle daughter of father Lton-te Mye-kru and mother Bzag-ste Nar hbyam." Rbag-zin told the Heaven-queen what had happened to her family, and had almost happened to her . . . until, that morning beside the dunghill, a brilliant white *Thang-dkar* had happened to come by. Though she knew that only exalted persons and deities were supposed to ride such birds, wretched Rbag-zin saw no other way to save herself from the approaching fiend; and so she grasped the vulture's silver tail with all her strength and beseeched it to carry her far, far away. And that was how she had ended up here, in the land of the Heaven-queen.

Much touched by her story, the Heaven-queen expressed sorrow for the child, and consoled her suffering. She even offered to let Rbag-zin stay in her kingdom; but Rbag-zin, though grateful, was determined to keep traveling and meet her destiny, whatever it might be. When her *Thang-dkar* arrived at the outcrop, she took hold of its tail again; and, bidding the Heaven-queen farewell, she journeyed on, traversing many passes and rivers as the mighty bird bore her along.<sup>[175]</sup>

To the Tibetans, such feats were by no means restricted only to ancient tales; some of the spirit-mediums of modern Tibet claim that their god-like ancestors from the earliest times could easily accomplish feats of magic like riding large raptors, and could even summon them at will to do so.<sup>[176]</sup> But due to increasing defilement from being repeatedly reborn into the human race, these powers have now been lost.<sup>[177]</sup> In 2002, John Vincent Bellezza interviewed a spirit-medium by the name of Pho-bo lha-dbang who stated that until the time of his great-grandfather sGrub-rdzug, his respected lineage of mediums commonly travelled about on *Thang-dkars* (among other animals). sGrub-rdzug was sometimes sought out for help by people who had travelled for almost a week on horseback to seek help for ailing relatives that they had left back home. These weary people were assured by the medium that he would see their relatives the very next morning; and despite their incredulity, he always did, without fail, by enlisting the help of a gargantuan *Thang-dkar*, the monstrous wings of which were as vast as a shepherd's unfurled yak-hide tent. This vulture would faithfully appear soon after dawn at a nearby prayer flag mast, and fly the good medium off to the person in need (who hopefully wasn't prone to heart attacks from sudden shocks).<sup>[178]</sup> Judging from Bon ritual texts, respected gods and their entourages were offered Khyungs to ride by their hosts as a matter of course<sup>[179]</sup> – and when on the wing, riding the "king of the bird mount," a god was typically surrounded by a circle of other riders mounted on the great birds.<sup>[180]</sup>

Alas, the vast majority of the pastoral peoples of the Far Eastern mountains, as well as those of the vast steppes of Northern China, Mongolia, and points west, have to rely on more firmly grounded and domesticated animals for transportation – as well as food, trade, and sometimes even shelter.



Some of these herding cultures are very old; the pastoral lifestyle in the Changthang Plateau of western Tibet may date from the domestication of the Yak, some nine or ten thousand years ago. Others came into being more recently; until about 1000 BCE, the peoples of the steppes in Northeastern China and Mongolia lived mostly in sedentary communities. But, due to the introduction of horseback riding (and probably also to overgrazing), they became much more mobile in the following centuries, driving their herds far across the steppes in the search for new pastures.<sup>[180]</sup> Even today, Horses are the prevalent mode of transportation throughout the steppes, being far more dependable and versatile than wheeled vehicles. It's often assumed by settled peoples with complex systems of agriculture that pastoralists would immediately abandon their nomadic ways in favor of the seemingly easier agricultural lifestyle, if only they had the chance. The *drokba*, as the Tibetan herders call themselves, would vehemently disagree with this; they look down with distaste on their farming neighbors in the lowlands, and believe their own ways of life make them freer than any field-plowing manure-spreader could ever be. Besides, abandoning herding would also mean abandoning the Changthang; for unlike most areas where pastoral herding is practiced, there is no threat of agriculture taking root in western Tibet. Most of the plateau and its surrounding mountains are simply too cold and rocky, with a brief growing season and highly unpredictable weather, for crops to ever be successfully grown there.<sup>[181]</sup>

Pastoral herding is a way of life for most of the peoples of Central Asia, whether they lived in the steppes or the mountains; and for the most part they have only been turned away from this lifestyle and towards agriculture, as many herders in the Soviet Union were, by massive social changes and brute force. Herders depend on their animals for virtually everything, as can be seen by this quote from an old *drokba* nomad named Pemba: "We live off the products of our animals. . . . they take care of all our needs. They are our true provider and our measure of wealth - if they flourish, so do we."<sup>[182]</sup> The animals most commonly kept by the herders are Sheep, Goats, and Horses. (The latter are raised both for riding, and, by some Mongolian nomads, for eating.<sup>[183]</sup>) There are regional differences in livestock; people of the steppes in northern China often keep Bactrian Camels, Tibetans keep Yaks, which they value much more highly than their Sheep and Goats, and herders in the mountains bordering India keep Water Buffalo. But overall, the strategy for successful herding is similar most everywhere: try to keep as many animals as can be kept without badly damaging the vegetation on which they must feed, and try to lose as few animals as possible to the threats of disease, starvation, foul weather, and predators.

That stipulation of not damaging the vegetation hasn't always been met. Central Asia as a whole has seen a steady trend of increasing desolation for thousands of years; much of the land that is covered by desert today was once verdant forest or grassland. This can be largely blamed on the actions of humans, especially deforestation and overgrazing. But not all of this degradation is the fault of the herders; the steppes of northern China were once known as "China's Serengeti," due to the exceptional abundance of wildlife found there.<sup>[184]</sup> Most of that wildlife is gone today; for much like the American West, the Chinese North has been settled by outsiders intent on "conquering" it by displacing or absorbing its nomadic inhabitants, killing its wildlife, and turning it into farmland. Many of the region's large mammals have been severely overhunted; some, like the Przewalski's Horse (the same species as the European Tarpan), to the point of extinction. The Saiga Antelope, which in the 1990s roamed the steppes of Kazakhstan in numbers of over a million and was a staple of the vultures there, now numbers a mere 30 to 40,000 due to both unrestricted hunting and a series of unusually severe winters.<sup>[185]</sup> With few exceptions, the vultures of the steppes have had to turn to the carrion left by livestock to survive. Like livestock everywhere, the animals of the Central Asian



herders are subject to occasional outbreaks of disease, often enough that an especially lethal year is known by a special moniker among the Kazakhs: *dzhut*, “mass destruction year.” During such a year, many Eurasian Griffons appear on the steppes of northern Kazakhstan, well outside of their normal breeding range, in order to sample the abundant carrion produced by the outbreaks.<sup>[186]</sup>

Harsh winters can be just as devastating for livestock, and are a regular boon to vultures. Spring is an ideal time for the carrion birds to begin raising their young, as many newborn animals succumb to cold or predators, and the melting snows reveal animals that have died over the winter. Himalayan Griffons apparently had never bred in Mongolia until the 1940s, when numerous cold winters and summer droughts led to massive mortality of both wild and domestic animals.<sup>[187]</sup> Since then, the Griffons have been conspicuous residents of that country. The normally mountain-dwelling Himalayan Griffons are reported to wander onto the steppes from time to time – as do the Lammergeiers, which sometimes descend from their mountain abodes and seek food in the steppes, especially during the evening.<sup>[188]</sup> By summer, the steppes are rife with desiccated skeletons that are inedible to other scavengers, leaving an abundant source of food for the bone-eaters. Experienced observers of Lammergeiers believe that they actively prefer old, dried-out bones to fresher items,<sup>[189]</sup> and they might well fly to low altitudes to find a ready supply of these. In a backhanded tribute to the species’ digestive capabilities, it was widely believed in and around Tibet that a Lammergeier larynx, if cooked and eaten, would enable whoever ingested it to digest anything, even indigestible meat that was already sitting in the stomach.<sup>[190]</sup>

Neither Lammergeiers nor Himalayan Griffons can actually breed in the steppes; the exclusively cliff-nesting birds are unable to do so. Monk Vultures are more flexible; not only will they nest in the steppes, the otherwise exclusively tree-nesting birds will build their nests on rocks if no trees are available.<sup>[191]</sup> Large groups of Monks commonly appear where herds of Cattle have starved to death over the winter;<sup>[192]</sup> and, quite sensibly, Monk Vultures often raise their young during the spring, when there are numerous livestock carcasses to feed from. But this source of food is only transitory; by summer, the carcasses have either been consumed or are dried out and inedible (except to Lammergeiers), and the herders have taken their animals elsewhere. This reveals one of the many problems that arise when vultures have to depend on livestock for food; with the herders gone, many of the Monks have to head far afield in their search for carrion, with some birds even abandoning the chicks in their nests.<sup>[193]</sup>

The lambing and calving seasons are especially stressful for the herders. Young animals, which represent their livelihood and their economic future, are easy prey for predators and Jack Frost alike. In Central Asia, herding is often done by children as young as eight years of age; but during the spring, when lambs and kids are being born, adults take over, because the task of shepherding the herds is then too important to be left to inexperienced youngsters. The newborn animals are at a very high risk of freezing in the still-chilly spring temperatures; but the biggest threats to lambs, calves, kids, and foals run on four legs. The high steppes and mountains of the Far East are notably lacking in large mammalian predators when compared to the rest of Asia, and their absence of these animals has surely helped pastoralism to be so successful there. But there are still Wolves, which, according to the herders, do most of the harm to young animals; and Lynx, Snow Leopards, and large eagles occasionally take livestock meals as well. These predators are sometimes killed by herders, even by Buddhists, although the doctrine of *ahimsa* frowns upon such killings. Himalayan and Eurasian Griffons often appear among birthing Sheep and Yaks with the intention of eating the afterbirth, the placentas.<sup>[194]</sup> Monk Vultures and Lammergeiers may do so as well, but these birds are not so welcome.



Monk Vultures (above), the "Grand Eagles" of the Mongolian steppes,<sup>[195]</sup> undeniably do kill live prey sometimes. In the Ordos Desert of China's Inner Mongolia province, the Monk Vulture is considered an important predator upon rodents,<sup>[196]</sup> and the Vultures' victims may sometimes include livestock.<sup>[197]</sup> In Mongolia, Monk Vultures are said to gather around ewes that are experiencing difficulty in giving birth, and then to devour the newly born lambs.<sup>[198]</sup> Across Eurasia, the bold and aggressive Monks are commonly the first vultures to arrive at carcasses; due to their size and strength, they need fear no other birds, and can easily drive other scavengers off of a carcass.<sup>[199]</sup> Therefore, it is very likely that any herder coming upon a dead lamb would see only Monk Vultures, and no other scavengers, feeding upon it. This Vulture also has the habit of pirating prey from other raptors,<sup>[200]</sup> and like its African counterpart the Lappet-faced Vulture it may even take on mammalian predators. Monks have been reported to work together in order to keep Wolves away from a carcass;<sup>[201]</sup> they might well act in a similar manner to dispossess foxes or feral Dogs of a Sheep that the canines had killed. A herder who came upon a Monk Vulture eating a lamb would be unlikely to give it the benefit of doubt, of course, and would immediately assume that the vulture had killed the lamb. Largely due to its reputation as a lamb-killer, the Mongolian government long paid out rewards to anyone who killed Monk Vultures or destroyed their nests,<sup>[202]</sup> although such officially sanctioned persecution seems to have now ceased.

More contentious still were herders' relations with the Lammergeier. As we'll see [in Chapter 7](#), there is a longstanding and still not fully resolved dispute among European naturalists about whether or not Lammergeiers, the most superficially eagle-like of vultures, ever kill live prey (other than tortoises). This debate extends to the Lammergeiers of the Far East as well, and has not come any closer to being closed here. Two different books dealing with the birds of East Asia, both written by authors with extensive experience of wild Lammergeiers, have claimed that, "It is a scavenger pure



and simple. . . it has never been known to attack live animals,"<sup>[203]</sup> and that, "It can apparently be taken as a fact that . . . under favorable conditions, they will seize living prey."<sup>[204]</sup> As one British hunter familiar with the species lucidly put it, "The most contradictory statements exist regarding its habits."<sup>[205]</sup> One European observer claimed that

I never heard of the Himalayan lammergeier attacking anything, and in Kashmir have often watched them passing over flocks of goats, on one occasion close over some female ibex with kids. . . I frequently observed them sail round within a few yards of fowls and tame pigeons, but never saw them attempt a raid on any living thing, always contenting themselves with bones thrown out after the soldiers' dinners, or with offal from the slaughterhouses.<sup>[206]</sup>

Similarly, Perceval Landon wrote that during the British Expedition into Tibet, "There were hundreds of lammergeiers about the camps . . . and I had daily opportunities of studying their habits, but I never saw them eating anything but offal or dead animals."<sup>[207]</sup>

A hint of smug cultural superiority can sometimes be found in such dismissals of Lammergeier predation, as in the writings of one 19th-century British naturalist who admitted that though there must be some foundation "for the many statements that have been put forth as to the rapacious character of this bird. . . this foundation I believe to consist in the natives constantly attributing the depredations committed by eagles to the Lammergeier."<sup>[208]</sup> To accept that the exact opposite might be true - that the "natives" who had been familiar with the vultures for centuries had accurately reported their behavior, and that it was the recently self-appointed "experts" who were confused - required the sort of openmindedness that was possessed by few educated Europeans of the imperial era. The "facts" used to support these dismissals seldom inspire much confidence; one British Army officer claimed to "have known the bird well in its native haunts for thirty years and more," but he still inexplicably maintained that it "would be utterly impossible" for the Lammergeier to carry any prey in its talons, "for the creature does not possess the strongly-curved, sharp-pointed claws of the eagle, but the far straighter and perfectly blunt talons of the vulture."<sup>[209]</sup> To make such a statement about the crook-taloned bone-dropper is as surrealistically ludicrous as claiming that monkeys can't climb trees because they lack opposable thumbs.

Of course, such pedantic squabbles had no effect upon the Lammergeiers themselves, and most of the people and all of the animals who share the birds' mountainous domains have little doubt that the vultures can, at least on occasion, be formidable predators. The Soviet field biologists who

intensively studied the mountain-dwelling wild sheep and goats of their nation were adamant that, aside from the Golden Eagle, the Lammergeier was the only bird that frequently preyed upon their subjects.<sup>[210]</sup> It's been noted by a number of naturalists that the Lammergeier's distribution in Asia seems to be quite closely correlated with the distribution of such animals;<sup>[211]</sup> so much so that in the Dauria area of Siberia, Lammergeiers disappeared during the 19th century at exactly the same time and rate as did the local Argali Sheep.<sup>[212]</sup> Largely intact carcasses of young herbivores are commonly found in Lammergeier nests (left); and though



some of these may have been already dead when carried off by the vultures, it stretches credulity to believe that *all* of them were. The experienced British hunter and naturalist D. C. Phillott described two instances of predatory behavior by Lammergeiers that he personally witnessed. During the first, in the mountains of Baluchistan, he saw a Lammergeier stoop at a flock of Chukor Partridges. He sent a servant to discover the result of the attack; the man returned with a dead Chukor, its body still warm. The other was at a hill station near Dera Ismail Khan in northern Pakistan, where he “saw one stoop repeatedly at a markhor [a goat-like mammal] kid, on a narrow ledge on the cliff-face below me. At each stoop the plucky mother lowered her horns to the ‘charge,’ and effectually repulsed the attacks of the assailant.” Phillott was uncertain whether this was a serious attack or merely a case of a bird “animated by that spirit of mischief,” but the experienced native hunters accompanying him assured him that such attacks were both serious and potentially deadly.<sup>[213]</sup>

In the 1920s, the *Journal of the West China Border Research Society* noted that, “Tibetans in Batang affirm that the bird will eat carrion of any kind and also kill live game for food, particularly rabbits”;<sup>[214]</sup> and there's a 19th-century report that a “a rabbit-yard at Almora [near the India/Nepal border] was visited by one of these birds, and rabbit after rabbit carried off.”<sup>[215]</sup> The people dwelling in the foothills of the Himalayas maintained that, at times, Lammergeiers would carry off Pheasants, Chukor Partridges, and occasionally young lambs.<sup>[216]</sup> More recently and further west, in the Caucasus Mountains of Georgia and Azerbaijan, the Georgian ornithologist A. V. Abuladze was lucky enough to witness several instances of Lammergeiers preying on large birds like grouse and snowcocks - by the dramatic, falcon-like method of swooping over ridges at high speed and knocking the birds out of the air with a lethal strike.<sup>[217]</sup> Furthermore, the behavior of the animals that share the Lammergeiers' mountainous habitat provides little credibility for the theory that the vultures *never* attack live prey. Mountain mammals as large as goats as well as birds like partridges pay no attention to flying Himalayan Griffons, secure in their knowledge that these giant vultures are harmless; but they are very much afraid of Lammergeiers, displaying what zoologists call “alarm reactions” when the birds appear.<sup>[218]</sup> That is, they abruptly stop what they were doing, call out to their cohorts to warn them of the danger, and make ready to flee or hide, all the while intently watching the predator that raised the alarm. These reactions could only have become ingrained after repeated experience of attacks by Lammergeiers.

This conclusion is problematic partly because there are so few reports of Lammergeier predation that modern science deems reliable, and also because it conflicts with the longstanding zoological dogma that predators and scavengers are irrevocably separated; that predators kill, scavengers don't, and never the twain shall meet. This dogma has been challenged and partly overcome in the last few decades, most famously in the case of the Spotted Hyena of Africa. Long thought of as nothing but cowardly scavengers of Lion kills, field studies of Hyenas have demonstrated that they are in fact formidable predators in their own right, and that Lions often scavenge from Hyena kills. Still, the Hyenas have certain traits - bone-cracking teeth and jaws and the ability to digest almost anything - that aren't shared by most other carnivores, and which can be interpreted as very specific adaptations for scavenging. But the biologist George Schaller has pointed out that these features could also “be viewed more as adaptations enabling them to utilize their own kill fully rather than solely as an adjustment to a scavenging existence.”<sup>[219]</sup> That is, regardless of whether their meal consists of a carcass that they killed, stole, or found already-dead, the Hyenas that consume every last shred of it are merely using their evolutionary gifts in the most profitable manner. Much the same logic can be applied to the Lammergeier; it's certainly difficult to believe that the lineage of this most unusual bird included nothing but specialized scavengers of large mammal



bones. Rather more likely is the possibility that the Lammergeier's ancestry included birds that, like its living relative the Egyptian Vulture, had generalized feeding habits that included predation; and that, like the Hyenas, its ability to consume and digest bones originated primarily as a way for the bird to glean the maximum amount of nourishment from its own kills. Coincidentally or not, the same conclusion has already been reached by some of the mountain-dwelling peoples of Central Asia, who tell stories in which the Lammergeier mythically transformed from a predator into a scavenger.<sup>[220]</sup>

When viewed in this light, the Asian reports of Lammergeiers acting as predators make more sense; perhaps such birds were merely reverting to ancestral behavior, prompted by the lack of large predators which afforded richer opportunities for predation than could be had by their counterparts in carnivore-rich areas like East Africa (where there are few reports of Lammergeier predation). After journeying through the Altai Mountains on a paleontological expedition, the naturalist Roy Chapman Andrews concluded that "except for man, the sheep and ibex have no important enemies in this region, unless the Lammergeier may be counted as one."<sup>[221]</sup> It's been suggested that among the Lammergeiers of the Caucasus, the habit of attacking live prey is restricted only to certain individuals or pairs of birds, rather than the population as a whole; and that the birds take to predation only in areas where there are too few large mammal carcasses to sustain them.<sup>[222]</sup> There may also be some seasonal opportunism at work; Kirghiz shepherds have claimed that Lammergeiers will attack Sheep as they are driven from mountain pastures into the valleys at the beginning of winter, especially if early snowfall has made the mountains treacherous for the none-too-surefooted animals. According to the shepherds, Lammergeiers wait until Sheep have fallen or slipped near a high precipice, and then swoop at the animals, apparently with the intention of forcing them over the edge and into a fatal fall. Accounts of similar attacks on wild mountain goats have come from the mountains along the Kazakhstan/China border.<sup>[223]</sup>

Reports of Lammergeier attacks on humans are comparatively rare, but there are a few. One from the mountains of Kazakhstan tells that a man lost his footing on a steep slope and managed to cling to a bush overhanging a precipice, but could not pull himself back up to the path and had to await assistance. He was found in that position by a Lammergeier, which hovered overhead and began to beat the dangling man with its wings, and was only driven off by gunfire when help finally arrived.<sup>[224]</sup> In Tibet, attacks on humans by Lammergeiers apparently were frequent enough that they were embodied in a proverb. This phrase was translated by M. H. Duncan of the West China Border Research Society as, "A vulture (of this type) can kill a man, but if a man kills another man a ransom must be paid." The meaning, again according to Duncan, was that "a bird of this kind can kill a man and get away with it but a man who acts like this bird and kills another man must settle up."<sup>[225]</sup> And as we've already seen, in ancient China the *ku tiao*, the horned "evil eagle," was said to be a maneater; though whether it ate them after finding them dead or killing them itself is unrecorded.

General Ian Hamilton of the British Army would no doubt have vouched for the latter, based on his personal experience with the power of the *ku tiao*. In 1876, Hamilton was stationed in the Ladakh region of northern India, near the village of Gya. One day while out hunting with a native servant named Lassoo, Hamilton wounded an Ibex and followed it along a cliffside half a mile (800 m) above a river, only to be stopped by a large scree, a field of loose rocks, about 200 yards (183 m) wide. Lassoo crossed the scree without any problems; Hamilton, on the other hand, found that the longer he looked at the crossing, the less he liked it - until he saw a "solid rock the size and shape of a coffin" amidst the debris, which could serve as a resting point in the middle of the scree. Hamilton climbed about 20 yards (18.3 m) higher than his chosen rock, then began his crossing, "carried down

with a cloud of dust and stones" with every step. He did manage to reach his monolithic sanctuary; however:

Hardly had I settled myself when there was a tremendous swish in the air and my hat was sent spinning off my head down the precipice whilst I received a blow which all but made me follow it. I was being attacked by a Lammergeyer or Bearded Vulture, which was making circles round me. I shouted out and by the mercy of Providence at that moment Lassoos fired off his rifle. Otherwise my remains would have fed this huge and hungry bird at the foot of the cliffs 2,000 feet below.

In his book *Listening For the Drums*, Hamilton added that he wasn't wearing his usual headgear at the time, for prior to the trip his men had made him "a sort of Robinson Crusoe hat of canvas and musk deer skin with the crown and sides of black Ladak lamb, which I was then wearing." He seems to have thought that he was targeted by the Lammergeier because he was wearing a hat made from the hide of a prey-sized mammal, which (from overhead) gave him the superficial appearance of same. This may have been the case; there are numerous other incidents on record of birds of prey launching attacks on people wearing furs, and especially fur hats.<sup>[226]</sup> In later correspondence to a personal friend, Hamilton described this incident as "the strangest adventure of my life," and claimed that he had never spoken of it to anyone; the reason for his silence being that "Sinbad the Sailor was carried off by a Roc; but I am perfectly certain he would have been wiser to keep his mouth shut, and certain that his wife was not taken in by this attempt to account for his having left no tracks upon the sand when absent without her leave."<sup>[227]</sup> Who can say how many *more* men suffered Lammergeier attacks, yet remained silent about their ordeals due to fear of wifely wrath?

Less dramatic than such attacks, but of far greater import to both people and vultures, are the regular migrations and treks that are undertaken by the nomadic herders of the Far East. Travel in the Asian steppes and mountains can be difficult for both man and beast at the best of times, and the journeys of the herders aren't always taken at the best of times. Nomads like the Tibetan *drokba* generally use two encampments every year: one that is inhabited in spring, summer, and winter, and one that is used only in autumn, in order to spare some of the forage at the main encampment. When the autumn encampment's pasture is almost grazed away at the beginning of winter, the nomads return to the main encampment, where their animals must survive on the remaining vegetation as best they can until springtime.<sup>[228]</sup> The round trip covers no more than 40 miles (64.5 km); there is little point in journeying very far, for the harsh climate of the Changthang ensures that there is no grass growing anywhere within traveling distance for eight or nine months of the year. The hardy Tibetan Yaks are an exception to this pattern; during the winter, they are moved *higher* into the mountains and allowed to graze there. These Yaks are largely impervious to cold and to the effects of high altitude which are often lethal to less mountain-adapted animals; in fact, they often become ill if kept below 10,000 feet (3,050 m) for long.<sup>[229]</sup>

If a herder's animal dies near an encampment, in a herd that is closely watched by shepherds, then its carcass will most likely be recovered by the herders. If an animal dies on a journey, it will most likely be left where it fell; the entire caravan cannot be stopped for its sake, especially in foul weather. Similarly, if an animal dies in some high mountain meadow or isolated pasture, it will have to be left there; recovering it would simply be too much trouble. And even if it dies near an encampment, the local vultures may find it before the herders do. In the mountains of Kashmir, dead and dying animals are found mainly in the summer months, when the shepherds have driven their Sheep and Buffalo to higher pastures where disease, predators, and the temperamental mountain climate all take their toll of the animals. The local Himalayan Griffons are well aware of these

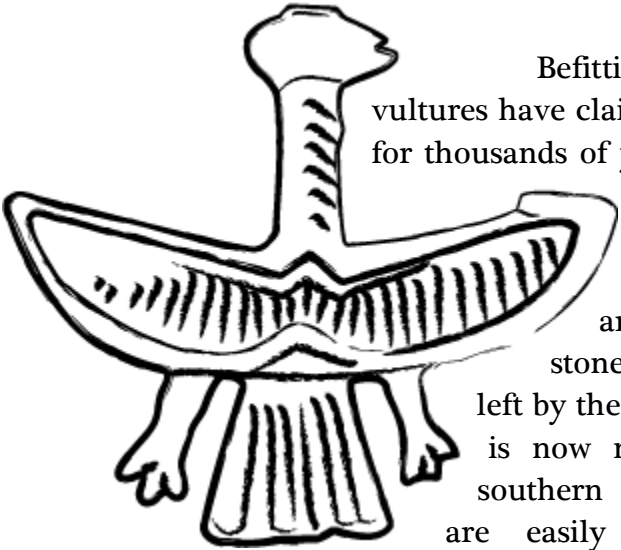
seasonal periods of abundance, and make every effort to frequent the pastures during summertime.<sup>[230]</sup> During the winter, nomads inhabiting foothills or steppes often undertake much longer journeys to lower regions in the search for pasture. Nomads of the steppes of northeastern China seldom need to travel far; their land is (or was, until recently) fertile, watered with many rivers, and has a relatively equable climate. But the herders inhabiting the steppes further west, in the harsh lands bordering the Gobi Desert, need to travel every season to find ungrazed pastures and fresh water.<sup>[231]</sup>

For sheer drama, no nomadic migration can compare to the great salt treks of the *drokba*. Only the men of the Tibetan nomads undergo these springtime excursions, in which they take huge caravans of Sheep and Goats to the dried-up beds of salt lakes, gather as much salt as the animals can carry, and then drive the animals south to farming villages in Nepal, Bhutan, and northern India, where the salt is sold. The entire journey takes as long as four months.<sup>[232]</sup> These caravans encounter some of the harshest terrain in the world; and while the treks are undertaken only during the warmest parts of the year in order to minimize the danger from cold and avalanches, many animals are still lost. Some stumble and fall from precipices, some are killed by rockslides or avalanches, some die during the nights (which are still quite frigid), and some simply perish from exhaustion. It is then that the vultures, watching as they have been for centuries, move in and consume the casualties. In a sense, the mountain vultures have an easier time of getting food from caravans and migrations than do their cousins in the lowlands. On a dry and open plain, a caravan may move in most any direction, since there is little to hinder its movement. Mountain caravans must keep to the well-worn high passes and trade routes that thread through the peaks. Vultures are well aware of these regular pathways, and commonly keep in the vicinity of them;<sup>[233]</sup> a steep and slippery mountain pass is almost as dependable a source of food for mountain vultures as a tannery or bone mill is for lowland vultures.

In the 1840s, a pair of French missionaries by the names of Evariste-Régis Huc and Joseph Gabet traveled through the arduous terrain of northeastern China, Mongolia, and Tibet, with the intention of reaching Lhasa and spreading the Catholic gospel there. During the final leg of their journey to the Tibetan capital, they rode through the high, dry plateau along with a large Tibetan caravan. As they recorded in their book *Travels in Tartary, Thibet, and China*, the missionaries were distressed to see that:

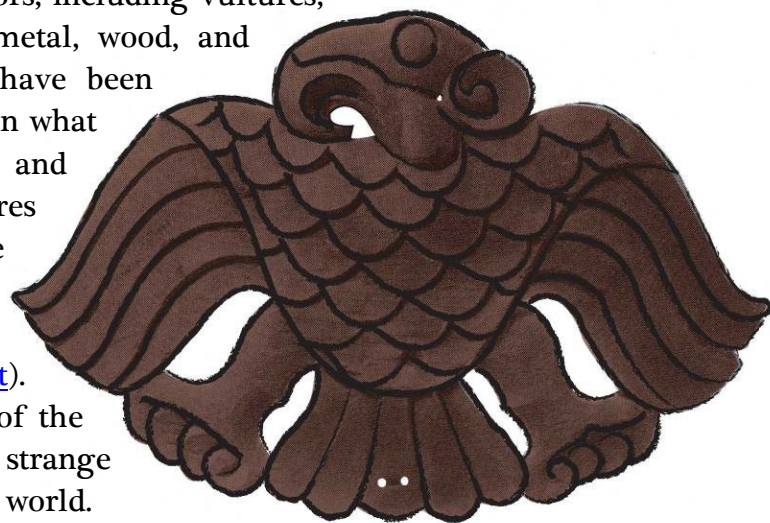
More than forty men of the caravan were abandoned, still living, in the desert, without the slightest possibility of our aiding them. . . . The general body of the caravan could not stay to nurse them, in a barren desert, where there was hourly danger of wild beasts, of robbers, and, worse than all, of a deficiency of food. Yet, it was a fearful spectacle to see these dying men abandoned on the road! . . . As soon as the last straggler had passed on, the crows and vultures that incessantly hovered above the caravan would pounce down upon the unhappy creatures who retained just enough of life to feel themselves torn and mangled by these birds of prey.<sup>[234]</sup> [Translated by William Hazlitt]

Later, as their caravan descended from the mountains surrounding Lhasa, the missionaries witnessed “monstrous eagles [probably Lammergeiers], which followed the track of the caravan, [and] were daily provided with a number of dead bodies.”<sup>[235]</sup>



Befitting their perpetual presence around the herds of the nomads, vultures have claimed a prominent place in the folklore of these pastoral peoples for thousands of years. Birds of prey of all kinds have figured heavily in the art and beliefs of the steppe dwellers, some of whom have long depended on hunting with trained raptors to obtain food and furs. Many raptors, including vultures, are depicted in metal, wood, and stone artifacts that have been

left by the steppe peoples in what is now northern China and southern Russia. Vultures are easily distinguishable



from other raptors by their long necks ([left](#)), visible ear openings, and sometimes even subtle depictions of the Monk Vulture's dark mask of feathers ([right](#)).

And vultures are frequent players in the folktales of the herders, who have never tired in telling stories of the strange and often spectacular creatures who share their harsh world.

The Buryat people of Siberia say that the gods first brought the vulture to the world for a very specific purpose. After the deities had created the first people, they sent a vulture to protect them from any harm that might befall them at the hands of evil spirits. But the people didn't know of the bird's sacred mission, or understand why it was forever hovering above their heads, and so they often shot arrows at it. Understandably upset at this treatment, the vulture complained to the gods that it couldn't protect humanity if they kept trying to kill it. The gods responded, "Go back and give your wonderful power to one of the earth's inhabitants." Returning to earth, the vulture flew along the landscape until it saw a girl herding Sheep. The gods' delegated protector managed to entice the girl into a forest - never mind how - where it gave her its magical powers of protection, making her the first in a long line of shamanic women. <sup>[236]</sup>

While visiting the Buryats in the early 20<sup>th</sup> century, the anthropologist Jeremiah Curtin witnessed a religious ceremony during which a number of Horses were sacrificed. Afterwards, some of the animals' flesh was eaten, and some was thrown onto stone altars for the nourishment of the Burkans, the gods. Curtin observed that, "During the throwing of the meat on to the altars vultures, of which there were many, flew back and forth over the hill and at times swooped down very near to us." When Curtin threw a chunk of meat towards a vulture, the bird caught it in midair, much as a Tibetan vulture might catch a tossed lump of flesh during a sky burial. Intrigued by the presence of the birds at this religious ceremony, Curtin asked a Buryat named Vassya if the vultures themselves were regarded as divine. Vassya said they were not divine "in the full sense, but that vultures were represented in some narratives as rushing in front of the Burkans when they were passing from one place to another, and in that way they might be supposed to indicate that the masters of the opposite mountain were present, or on the hill where we were standing."<sup>[237]</sup> Vultures were also believed to be sent by the Burkans as winged spies, to locate people whom the gods wished to punish. <sup>[238]</sup>

The vultures involved in these stories and ceremonies were probably all Monk Vultures, which currently range further north in Asia than any other vulture; but the Buryats were once familiar with the Lammergeier, too. In his 1897 book *A History of Fowling*, H. A. Macpherson recalled a second-hand account of some rather unusual interactions with local Lammergeiers among the Buryat




hunters of the Tunkinsky District of Siberia, just west of the southern tip of Lake Baikal. These hunters were familiar with the Lammergeiers that inhabited the neighboring mountains, and had devised a novel way to capture the birds “with the aid of pebbles of such a size as the birds could swallow.” The hunters would soak the pebbles in blood, then “pile them in a heap in a place where the Bearded Vulture would be sure to find them.” Upon finding hard, blood-soaked objects, the bone-eating vultures would naturally swallow them – whereupon, “This heavy meal so indisposed the bird that it became heavy and unwilling to take wing,” and so it could easily be caught. Macpherson was undecided about the veracity of the tale, but the reputed proclivity of Lammergeiers elsewhere to swallow seemingly inedible items like calcareous rocks, and even an axe head, does make it more believable. He also mentioned that the name of the vulture among the Buryats was *Jello* (!), surely the most apropos name ever for the only bird that depends on bones and connective tissue for food.<sup>[239]</sup>

One old and very odd legend of the Kirghiz tells of the treasures that awaited those who plundered a Himalayan Griffon nest. It was said that after an appropriate period of incubation, the Griffon’s egg hatches - and an axe emerges from the shell. Not just any axe; an axe that can cleave anything on earth, and that can only be destroyed if a bird (perhaps the aforementioned *Jello*) swallows it. A man who finds this axe has acquired a miraculous weapon for life; but if no one discovers it after three days, it transforms - into a puppy. Kumaik, as the puppy is called, is a remarkable Dog. Easily recognized by his eyes, which are pale like those of his vulture parents, he is able to hunt down any wild animal, even a dragon. On top of that, Kumaik can predetermine the future of his owner, and so make them endlessly happy. But unless Kumaik is found by a human after three days, he turns into the usual Griffon fledgling.<sup>[240]</sup> Considering the difficulty and danger involved in reaching the nest of a cliff-breeding vulture, tempting such an endeavor with a mere legend does seem a tad malicious.

Just as bizarre is a story that, believe it or not, may have some basis in reality. It is said by the herders of the Tien Shan mountains in China that Snow Leopards - fully grown, 120-pound (55 kg) Snow Leopards - weary from their wanderings over the peaks in search of prey, will sometimes take rests in birds’ nests. These are large nests, as they’d well have to be; Monk Vulture nests, according to the herders.<sup>[241]</sup> One can imagine that a nest 6 ½ feet (2 m) across and lined with a bedding of wool and grass might look very inviting to a cat worn out from a long day of bounding after mountain sheep; but only if the Vultures weren’t present, because there would surely be some kind of trouble if they were. A showdown between a Snow Leopard and a pair of vultures over the right to use a nest would rank as one of the weirdest confrontations to be found in the natural world; but, as far as I know, no one has actually recorded this taking place, and so it must remain in the realm of folklore. For now.<sup>[242]</sup>

## Exposure in the Far East

-  Ranges of vultures (darker areas are more diverse)
-  Exposure with no intent to attract vultures
-  Tree burials
-  Exposure with intent to attract vultures
-  Zoroastrian beholdings
-  Sky burials with dismemberment



With such an enthusiastically efficient corps of large scavengers on hand, it's not surprising that some of the peoples of the Far East chose to use the vultures to dispose of not only their livestock, but also of their deceased. The practice of deliberately exposing the dead to vultures was rather common in the Near East, as we saw in the last chapter; but it seems to have been much more so in the Far East, where it's occurred almost everywhere at one time or another, from Afghanistan to Korea and from Mongolia to Thailand. In historic times, at least, exposure has been practiced mainly by Buddhists, although it would be inaccurate to describe exposure in any form of Buddhism as a religious obligation – where it does occur, it seems to be either a matter of practicality or a personal choice. As such, it has popped up in some unexpected times and places. In the 1890s, the American traveler William Rockhill noted that "bodies of Korean Buddhist monks are burned and that the ashes

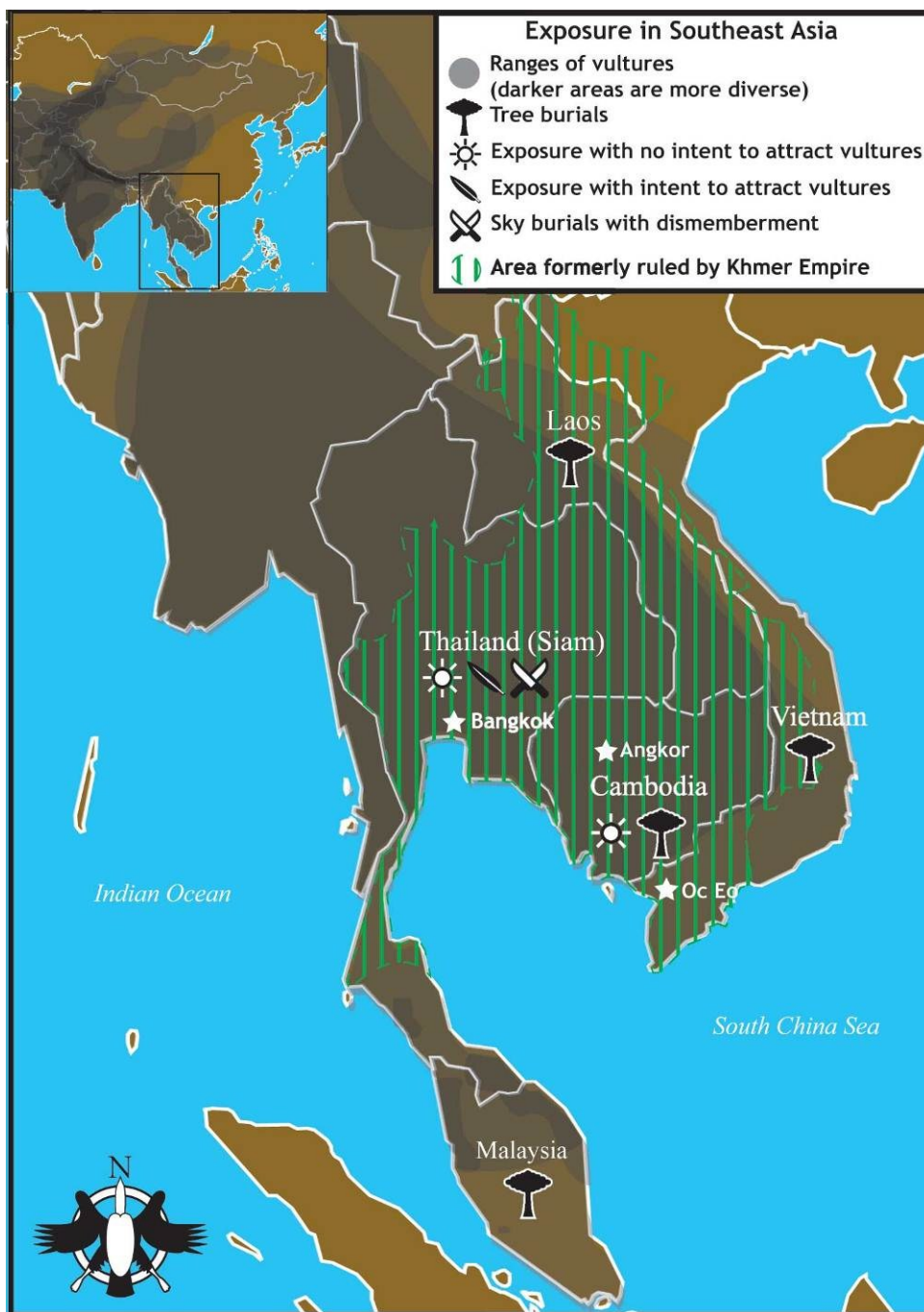
mixed with rice-flour are fed to birds"<sup>[243]</sup> – though the birds involved weren't necessarily vultures, which were never common in Korea.

Accounts by Chinese envoys to the Cambodian area of Southeast Asia indicate that exposure was one of several funeral methods used there, at least as early as the 6<sup>th</sup> century CE.<sup>[244]</sup> The most detailed of these accounts is found in the writings of Zhou Daguan, a diplomat of the Chinese Empire, who at the end of the 13<sup>th</sup> century was sent to Angkor, then the capital of the Khmer Empire. The Chinese Emperor commanded that he and his delegation provide information about the people and practices of this seat of power in one of China's most important tribute states. Zhou recorded what he saw in Angkor with typical bureaucratic dispassion; it can thus be safely assumed that what he wrote under the heading of "Death" was reasonably accurate:

When people die there are no coffins. The body is just kept on a kind of bamboo mat and covered with a cloth. When it is taken out of the funeral it is preceded by banners, drums, and music, as with us. . . . The body is carried out of town to a remote, uninhabited spot, where it is thrown down and left. After that, vultures, crows, dogs, and other village animals come and eat it. If it is quickly consumed, that means the father and mother of the dead person are blessed and so gained this reward. If it is not eaten or only partly eaten, on the other hand, it means the father and mother have come to this pass because of their wrongdoings.<sup>[245]</sup> [Translated by Peter Harris]

Zhou added that, "The kings are still buried in towers, though I do not know if their corpses are buried or just their bones." This statement may help to explain why an early archaeological

site in nearby southern Vietnam, known as Oc Eo, contains a mysterious, open-topped brick building with an uncertain function. The French archaeologist Louis Malleret suggested that it was used for exposure rituals similar to those practiced at the *dokhmas* of the Zoroastrians, though most of his peers have dismissed that theory,<sup>[246]</sup> and there appears to be no literary evidence that the Cambodians carried out their exposure rituals inside buildings. Zhou concluded his account of the Angkor funerals by mentioning, with a touch of Sinic pride, "Nowadays there are also more and more cremations,





mainly of the offspring of Chinese.” In today’s Cambodia, as in most other predominantly Buddhist nations, cremation is the norm,<sup>[247]</sup> despite Cambodia having by far the healthiest vulture populations in Southeast Asia. It’s uncertain why or when exposure fell out of practice.

The neighboring nation of Siam (now Thailand) also practiced exposure, perhaps due to the influence of the Khmer Empire, which controlled much of Siam at its peak. Accounts of Siamese exposure by travelers are wildly inconsistent, but they all seem to agree that exposure was never granted to everyone. One account from the late 17<sup>th</sup> century CE claimed that in Siam, vultures were gifted the bodies of those who had died of contagious diseases and women who died in childbirth,<sup>[248]</sup> while another from the same time period stated that the birds were given the bodies of children who died before the ages of three or four.<sup>[249]</sup> The Briton Alexander Hamilton visited Siam in 1718, when he recorded the creative punishments that the Siamese meted out to criminals: “For rebellion or mutiny they are ript up alive, and their guts and intrails taken out, and their carcasses woven up in a twig-case, and tied up to a stake for vultures and other voracious fowls, or dogs to feed on.”<sup>[250]</sup> But exposure wasn’t used exclusively as a punishment; in his 1881 book *Siam: The Land of the White Elephant*, George Bacon wrote that when on the point of death, the Siamese dictated what was to be done with their bodies. He implies that the usual choice was between cremation or sky burial; therefore “if the deceased have ordered that his body shall be delivered to vultures and crows, the functionary cuts it up and distributes it to the birds of prey which are always assembled in such localities.”<sup>[251]</sup>

One of the more detailed accounts of Siamese exposure is found in the 1897 book *Siam On the Meinam From the Gulf to Ayuthia*, a travelogue by an American professor named Maxwell Sommerville. During his visit to Siam’s capital, Sommerville was privileged (if that’s the right word) to visit what he termed “one of the offensive and horrible sights of Bangkok . . . the most grewsome public institution in all this land - yes, in the world.” Ironically enough, this institution was located near the beautiful Buddhist temple of Wat Saket (better known to today’s tourists as the Golden Mount). At the time, the temple overlooked a charnel ground, the Burning Ghat, which served as a combination crematorium and exposure ground for Bangkok’s people. Sommerville and his companions entered the Ghat through an old stone building in the midst of a long wall with many human bones draped upon it; he found the interior “altogether a very dreadful sight; no matter how carefully we walked, we stood upon the ashes of human remains.”

Sommerville was told by his Siamese guide that:

The disposition of the remains of the dead depends almost entirely on the amount of money the family or friends of the deceased are able to expend. If they can afford thorough cremation, a large pyre is constructed and the defunct is rapidly disposed of in that manner. . . . The bodies of the poorer classes, the penniless, and particularly culprits [of crimes], are subjected to the more revolting fate of destruction . . . by the voracious birds of prey that congregate in the trees about the funeral pile.<sup>[252]</sup>

Observing a nearby grove of cotton trees “on which more than a hundred vultures were resting,” Sommerville theorized that the poor condition of the trees had been caused “by the grip of the birds’ claws and scorched by the hot cinders that rise from the public cremations.” (More likely, the vultures’ caustic droppings were to blame.) But the perched vultures – mainly White-rumped Vultures, judging from Sommerville’s photos - were only the scavengers’ reserve corps; “the more voracious vultures stand on the ground beneath the trees and near the funeral pyres, lazily swaying to and fro, waiting for the next cadaverous feast to commence.” When a new corpse was placed on the ground:



The vultures first assert their right, and it is recognized by the appointed custodians, who often serve the more audacious birds with morsels of flesh from the newly arrived subject. The vultures are allowed to attack the bodies of the penniless and friendless, as they lie exposed on inexpensive pyres built of sun-baked cow-dung. . . .

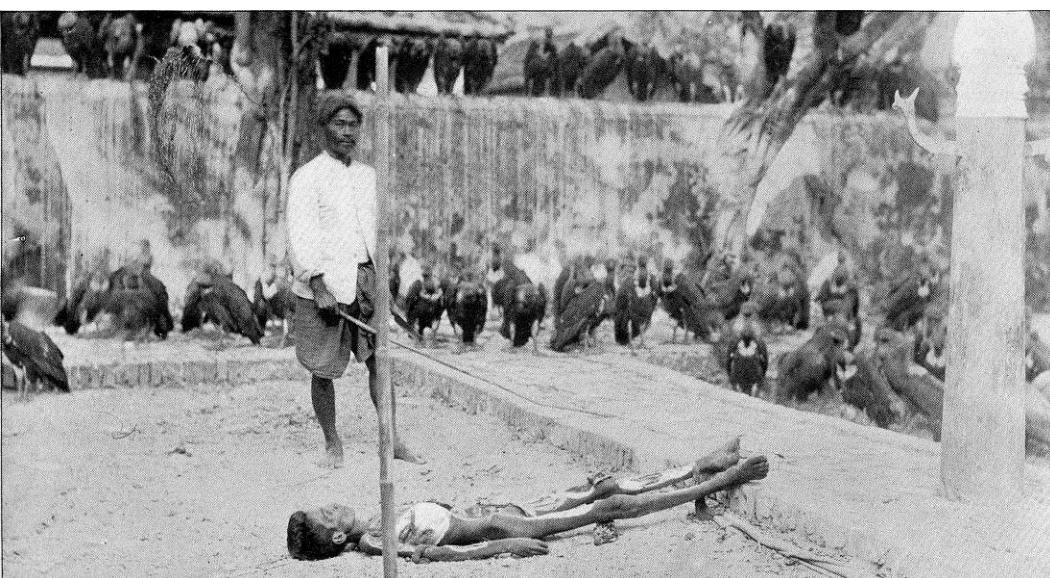


The vultures, rather than the resident Dogs, were favored by the custodians of the grounds when

they parceled out chunks of human flesh; and apparently vultures were dominant over Dogs when push came to shove, as when the birds saw “a dog with too large a portion . . . they pounce upon him and tear away his prize.” The birds were so aggressive that the attendants often had trouble “keeping them at bay until they can prepare and place the body on the pyre.”<sup>[253]</sup>

Sommerville’s guide urged him to stay at Wat Saket long enough to watch the cremation of a newly arrived prisoner’s corpse. He initially declined the opportunity; but his curiosity got the better of his qualms when he noticed

the hungry vultures, which were now flapping their wings and coming nearer and nearer to us under the trees, they having observed the two employees start for the prison. The men soon returned, and one of the



custodians quickly raised the body of the prisoner up in the box and with a sharp knife cut a number of strips of flesh from the arms and thighs and callously threw piece after piece to the more greedy birds, who now eagerly crowded around. . . . He did it with a malicious satisfaction which seemed to imply that in his wretched occupation he had formed attachments for certain vultures, and therefore favored them with choice morsels in advance of the others.<sup>[254]</sup>

Sommerville, no cultural ambassador, was wholly mystified that the attendants of Wat Saket “seemed actually to enjoy showing us these examples of their daily occupation.”

That occupation declined to nonexistence very shortly afterwards. Just prior to World War I, the Swedish zoologist Nils Gyldenstolpe visited Siam, and recorded some observations of the vultures still found there. He wrote:

Some years ago the Siamese had the horrible custom to place their dead, and especially those from the lower classes, on open courts in certain temples to let the corpses to be eaten by the Vultures, Crows and the semi-domesticated Pariah dogs. This custom is now strictly forbidden at least in the greatest towns but is probably still going on in some of the out-of-the-way places."<sup>[255]</sup>

Why the custom was forbidden is not recorded; in this case, at least, colonialism by Europeans was not a factor, as Siam was never absorbed into a European empire, as was every other nation in Southeast Asia. Nevertheless, no form of exposure survives among the Thai people today. As in Cambodia, cremations comprise the overwhelming majority of funerals, although some of the nomadic ethnic groups dwelling in the mountains of northern Thailand reportedly still practice simple exposure or tree burials, without any particular intent to attract vultures or other scavengers.<sup>[256]</sup>

In Asia north of Tibet, exposure has remained a common funerary method only among the people of Mongolia, though it's unclear just how venerable the tradition is among the Mongolians. Historic accounts of funeral rituals dating from the heyday of the Mongol Empire in the 13th and 14th centuries CE mention only burial, not exposure, which would support the theory that exposure was practiced there only after Tibetan-influenced Buddhism became the sole authorized religion of Mongolia in the mid-17th century. But the number of graves dating from the Mongol Empire period seems far too few to account for the number of people who lived and died at the time, and the elaborate practices described for the earth burials were probably too costly to be carried out by anyone who wasn't unusually wealthy. It's likely, then, that exposure was the default funeral for common Mongolians long before the 17th century, and medieval Chinese reports that some of the early ancestors of the Mongol people practiced forms of exposure certainly support that interpretation.<sup>[257]</sup> In the 1840s, the French missionaries Huc and Gabet claimed that near the Great Wall of China, "where the Mongols are mixed up with the Chinese, the custom of the latter . . . has insensibly prevailed," and so most of the Mongolians in that frontier region buried their dead. In Mongolia's interior, "among the true nomadic tribes, the entire ceremony consists in conveying the dead to the tops of hills or the bottoms of ravines, there to be devoured by the birds and beasts of prey."<sup>[258]</sup>

Cloudy though its history was, the exposure ritual itself is quite straightforward. Typically, a lama, a Buddhist holy man, is consulted in order to determine the most auspicious time of day to carry out the funeral, and the proper position in which the body should be placed. The body is then taken, intact and wrapped in shrouds, to a high, dry pasture where the conditions are too cold and windy for it to be of any use as winter quarters for the nomads. The funeral party must then leave the burial ground without looking back, allowing the scavengers a free hand. It makes no particular difference to the Mongolians which scavengers consume the bodies; vultures of all kinds, Wolves, foxes, and Domestic Dogs are all free to do so, as are eagles, sometimes described as "nomad's coffins."<sup>[259]</sup> In their book, Huc and Gabet opined that, "It is really horrible to travellers through the deserts of Tartary [Mongolia] to see, as they constantly do, human remains, for which the eagles and the wolves are contending."<sup>[260]</sup> Since no special provisions are made for disposing of the skeletons, these rituals provide great amounts of potential food for Lammergeiers; and the local people have long been aware of the strange bone-breaking behavior of those birds. In the late 19th century, near Mongolia's undefined border with China, the American explorer William Rockhill noted that though "all corpses are exposed on the hillsides to be devoured . . . I have never seen any skeletons." Rockhill



was told by the local Mongolians and Chinese that the local vultures were able to eat the bones "which they first break by carrying them to a great height and letting them fall."<sup>[261]</sup>

Exposure remained the standard funerary ritual for the vast majority of people in Outer Mongolia into the 1950s, although exceptionally wealthy or influential people might instead be cremated or buried in cemeteries, especially if the persons in question were prominent revolutionary figures. Driven by anti-religious and pro-modernistic fervor, Mongolia's communist government banned exposure in 1955, its reasoning being that the ritual was a Buddhist "disgusting remnant of the past" that reinforced unfair class distinctions among the people (the latter was a strange assertion, considering that it was voiced by an administration that reserved some cemeteries for the exclusive burial of its own high officials). The government's expectation was that all Mongolians would then embrace ordinary burial for the eternal rest of their loved ones. Alas, the ban went little noticed and largely unheeded in remote areas; and after Mongolia's Democratic Revolution of 1990, exposure was re-legalized, although burials are still the typical funerals for urban Mongolians.<sup>[262]</sup> Cremation has recently become popular as well, and may yet belatedly achieve the communists' goal of displacing exposure altogether.<sup>[263]</sup> In Inner Mongolia, which was absorbed into China in 1947, exposure has been entirely replaced by burial and cremation.<sup>[264]</sup>

Much the most famous and best-documented of the Central Asian vulture funerals are the *ja-gor* ("scattered (for) birds")<sup>[265]</sup> or "celestial funerals" of the Tibetan Buddhists, which are better known to Westerners as *sky burials*. *Ja-gor* were practiced into the 20th century only by Tibetans and by a smaller number of Buddhists outside of Tibet, principally in Mongolia and Nepal – although sky burials have now been outlawed in the latter nation.<sup>[266]</sup> The Tibetans have generally frowned upon the intrusion of outsiders at their funerals – sometimes to the extent that wardens are appointed to the funeral grounds to drive away unwanted onlookers<sup>[267]</sup> – not only because the sky burials are private religious ceremonies, but also because the presence of too many unfamiliar persons could easily disturb the vultures, without which there could be no "burial" at all.<sup>[268]</sup> Still, over the last couple of centuries a number of journalists have managed to witness sky burials through luck, bribery, or simple persistence, and most of what follows is distilled from their recollections.

The funeral ritual begins as soon as the deceased has been confirmed to be dead by the standards of tantric medicine. The deceased then lies in state at their home for three to five days, during which monks are hired to chant prayers for their soul from the Tibetan *Book of the Dead*. Meanwhile, an astrologer is consulted to determine the most auspicious time for the *ja-gor*, using the deceased's dates of birth and death as a baseline; and also to judge whether any special rituals need to take place beforehand, in order to prevent the various spiritual dangers surrounding the death from threatening the remainder of the deceased's family. Friends and relatives bring gifts of barley beer, butter, and incense to the house where the body lies; but they must refrain from expressing any grief, or else the spirit of the deceased might be compelled to stay and become a troublesome ghost. Likewise, the family must not wash their faces, comb their hair, wear jewelry, or speak aloud; and any mirrors in the house must be hidden or turned to face the walls, lest the spirit catch sight of itself.<sup>[269]</sup>

Preparations for the funeral commence before dawn, as it must begin once the light of the sun first touches the edge of the funeral platform.<sup>[270]</sup> The corpse is washed in perfumed warm water, then its back is deliberately broken, and it is dried and wrapped in a white robe with only the head uncovered. (Washing the body is said to make it more attractive to the vultures; it's a bad omen if they refuse to eat it.) A bier, a wooden table, or more recently a truck or tractor is used to carry the body to the bird offering site; the bearers of the corpse often garland it for the trip with religious objects like silken scarves. After the procession leaves the house, incense is burned to purify the



building. It's important that the body not be set down on the ground anywhere on the way to the funeral site, because if it is, then the rest of the ceremony must be performed at that very spot.<sup>[271]</sup> At the funeral site, the body is laid out on an area of flat rock, called a *mandala*; always located a reasonable distance from any homes or monasteries, and most often high on a mountainside; there are currently about 1,200 of these sites in Tibet.<sup>[272]</sup>

In order to summon the feathered undertakers to the funeral, a fire is built with cypress, pine, and juniper wood, with barley flour periodically sprinkled into the flames.<sup>[273]</sup> Some Tibetans believe that the vultures who take part in their *ja-gor* are incarnations of *dakas* and *dakinis*, faithfully carrying out their divine duties as spirits of the netherworld, rather than mere ordinary birds looking for an easy meal.<sup>[274]</sup> Divine or not, the birds that answer the summons are usually Himalayan Griffons (with a preponderance of birds in young, subadult plumage, judging from the available photos of *ja-gor*), though Pondicherry Vultures and Lammergeiers as well as Ravens, crows, and choughs may also show up in some numbers in anticipation of a meal. Even the normally solitary "God Bird," as the Monk Vulture (right) is known to the Tibetans,<sup>[275]</sup> may crowd in; there are reports of as many as 100 of these massive vultures congregating at a single *mandala*.<sup>[276]</sup> The burial ground attendants, known as *rogyapas*, sometimes also call the vultures with a sling which makes a loud humming sound when swung, or by blowing into large conch shells; the birds patiently wait for these familiar sounds before approaching the *mandala*.<sup>[277]</sup> If the *mandala* is located near an urban area like Lhasa, uninvited Dogs and Pigs may also try to partake of the feast offering of human meat, the *tshogs*; but, as their presence is far less auspicious than that of the vultures, the funeral attendants are paid to keep them away from the body.<sup>[278]</sup> Although the family of the deceased typically remains nearby throughout the preparations, only one or two family friends are expected to witness the actual funeral.



After the body is laid down, a tantric master marks circular symbols on its chest and belly, also called *mandalas*, thus echoing the ritual significance of the burial ground. The body is then carefully and methodically dismembered by the *rogyapas*; using large, razor-sharp knives, they slice across the chest or back, remove internal organs, and then cut all flesh from the bones until the body is effectively skeletonized. The actual spirit or soul of the deceased person is thought to leave its earthly shell willingly, but another, more corporeal entity tends to cling to the body; and if it isn't forced out into the open, it may attach itself to the bodies of other people and become a sort of poltergeist. Thus, the body must be cut open and dismembered to force it from its shell, where the vultures can dispose of it at their leisure.<sup>[279]</sup>

The actual butchery of the corpse varies somewhat from one funeral to another. One pattern was described in detail in the *Journal of the West China Border Research Society* with an article by J. H. Edgar, "Feeding Vultures With Human Flesh" (a title that makes it sound like a how-to demonstration). According to Edgar, "a roguish looking layman with a sharp knife" started on the corpse

by making a straight deep cut from the nape to the coccyx, then down through the buttocks and on to the heel. Then quickly followed similar parallel cuts on the back, buttocks, thighs, and calves. The arms were treated in a similar fashion, and knees, ankles, fingers, and wrists were almost severed. The toes and fingers were sliced down into strips and the abdomen and all earthward portions of the body were gashed according to rule. The longitudinal treatment of the cadaver accomplished, the ritual demanded transverse cuts which left the flesh in scores of squares, and finally the head was completely scalped in a manner creditable to an experienced Red Indian.

Edgar was adamant that, “The belief that the bodies are cut to pieces and the divided sections fed to birds is incorrect; the incisions form squares of flesh which are easily detached during the disgusting scrimmage.”<sup>[280]</sup> Nevertheless, the bodies *are* sometimes “cut to pieces” as part of the ritual; perhaps the custom varies from region to region. At still other funerals the corpse may only be skinned before the vultures are called in.<sup>[281]</sup> The Swedish explorer Sven Hedin witnessed such a funeral in Shigatse (now Tibet’s second-largest city) in the early 20<sup>th</sup> century:

A cord fastened to a post driven into the ground is passed round the neck of the corpse, and the legs are pulled as straight as possible . . . Then the body is skinned, so that all the flesh is exposed; the [*rogyapas*] utter a call, and vultures which roost around come sailing up in heavy flight, pounce down on the prey, and tear and pluck at it till the ribs are laid bare. There are no dogs here as in Lhasa, and even if there were, they would get no share in the feast, for the vultures do their work quickly and thoroughly. . . . The head is usually cut off as soon as the body is skinned. . . . The guild of corpse-cutters pursue their task with the greatest composure: they take out the brains with their hands, knead it into powder, and pause in the midst of their gruesome employment to drink tea and eat *tsamba*.

A lama also told Hedin that, “In some cases . . . the corpse is not skinned, but the head is cut off, the trunk is divided in two along the spine with a sharp knife, and each half is cut into small pieces, and the vultures are not called till this has been done.”<sup>[282]</sup> Whether their flesh is removed by knife or by vulture’s bill, the bones are beaten into powder with hammers or stones and mixed with *tsampa*, barley flour, and Yak’s milk (and sometimes the corpse’s brains) in order to make them more palatable for the birds.

By this point a great many vultures have inevitably gathered, but the *rogyapas* don’t begin feeding them until enough flesh and bone has been prepared to satiate all of them; otherwise the birds would fight amongst themselves for the food, and such violence would cast a blight over the entire funeral. The butchered remains are tied down, to prevent any overly hasty vultures from flying off with pieces of them, and one *rogyapa* is delegated the task of entering the *mandala* and swinging a long rope at any vultures that have entered the area before the proper time, forcing the hungry birds to retreat. When the corpse is finally ready for consumption, the vultures are encouraged to move in by the chief *rogyapa*, who may whistle a traditional tune to the birds or call, “*Shog, shog!*” (“Come, come!”).<sup>[283]</sup> The *rogyapas* then toss chunks of meat and bone paste into the *mandala*, where the vultures consume the bite-sized morsels in a matter of seconds. Sometimes tidbits are flung into the air over the *mandala*, so that the birds can catch and eat them without even touching down. The vultures are said to have a sort of hierarchal pecking order for the choicest parts, based on the Indian system of four castes; thus certain birds might prefer to eat the eyes, tongue, liver, or heart first, only consuming other body parts afterwards.<sup>[284]</sup> Once begun, the *ja-gor* is usually remarkably quick to end; in a matter of minutes, all that’s left of the body is the skull. The tantric master inserts a long needle into the “Brahma opening” on top of the skull where the cranial plates meet, allowing the spirit to escape from its prison if it hasn’t already done so. Sometimes the skull,

too, is smashed, and the remaining vultures are favored with its fragments and that greatest of all scavengers' delicacies, the brains. If the skull is instead left intact, it may ultimately become a ritual object such as a ceremonial teacup.<sup>[285]</sup>

With the body gone, the house of the deceased is cleaned and fumigated with incense, and the bricks that the body had lain on while in state are thrown into a river, if one flows nearby.<sup>[286]</sup> With full bellies, the vultures retreat back into the mountains, their task of aiding rebirth accomplished. The human participants in the sky burial may then eat a meal, *without* first washing their hands, in the belief that the spirit of the deceased would be pleased to see his or her friends ingest fragments of mortal remains with their food.<sup>[287]</sup> In a matter of minutes, the body has ceased to exist; but the soul, the important part, has moved on to the next incarnation. And for the Buddhists, that's precisely the point: to demonstrate the impermanence of life while simultaneously disposing of troublesome dead matter and offering generosity to the greatest birds of the mountains, the vultures, who must eat like the rest of us.

Though the *ja-gor* were by far the most common funerals practiced in Tibet, they aren't the only burial practice available to the people of this land of snows. Deceased persons whose families are too poor to afford a sky burial may be thrown into conveniently located rivers; sometimes such corpses are dismembered beforehand, but often they are merely wrapped in cloth and tossed in bodily. Despite the insane amount of time and effort that it takes to dig a grave in the cold and rocky ground of Tibet, victims of lethal and contagious illnesses are usually buried there, as are murderers, rapists, and robbers. Tibetans commonly believe that criminals who are buried underground are trapped there, spirit and all, and so cannot be reborn; if enough of them are buried, the thinking goes, eventually the criminal class will cease to exist. If a criminal is mistakenly granted a *ja-gor*, it's believed that the vultures will refuse to touch his corpse.<sup>[288]</sup>

Cremation is regarded quite differently; befitting the extreme rarity of firewood in most of Tibet, only highly regarded scholars and monks are consigned to the flames. Their ashes are scattered to the winds, or, for revered lamas, placed in a tomb known as a *stupa*.<sup>[289]</sup> If any vultures appear overhead during the cremation, their direction of flight is thought to indicate where the next incarnation of the deceased may be found.<sup>[290]</sup> Many Tibetans believe that if ordinary bodies were cremated, the resultant unenlightened smoke and ash would defile the sky and anger the gods that dwell there,<sup>[291]</sup> though of course that may be an *a priori* assumption. Cremation is generally the preferred method of funeral among Buddhists elsewhere; in Tibet, where the biomass consists largely of grass, grazers, and vultures, rather than trees, *ja-gor* is probably the nearest equivalent and most viable alternative. A recent study estimated that 80% of the five million ethnic Tibetans dwelling within Tibet's traditional borders will opt for *ja-gor* funerals upon death, making *ja-gor* by far the most popular of the world's few surviving exposure rituals – although human corpses are still thought to comprise only about 2% of the diet of Tibet's most numerous vulture, the Himalayan Griffon.<sup>[292]</sup> Sky burials are, rarely, conducted for domestic animals as well. There's a Tibetan ritual, the *tse thar*, in which a Yak is consecrated to the use of the gods, and therefore set free from any use by humans. Such a Yak is known as a *lha*, a "god Yak," and it is allowed to roam freely for its entire natural life. When that life ends, the *lha* is granted a sky burial, just like any human member of the community.<sup>[293]</sup>

Tibet's own intricate interpretation of Buddhism has proven to be both exportable and peculiarly enchanting for outsiders, as attested by its current popularity in the Western world. Its funerary rituals were no less so, at least to other Buddhists; areas beyond Tibet's political borders often practiced sky burial with unique local features. The small and extremely mountainous nation



of Bhutan, devoutly Buddhist and falling comfortably within the sphere of Tibet's influence, practiced its own variations of sky burial into the 20<sup>th</sup> century, although sky burial has vanished in all but the most remote parts of Bhutan today.<sup>[294]</sup> In the 1900s, John Claude White was privileged to visit a Bhutanese burial site near the village of Gangyul, "in a narrow, flat valley close under the eastern glaciers of [Mount] Chomolhari." White's guides showed him a "large flat rock . . . at the head of which was a wooden axle, forming a rack." It was explained that corpses were brought to this holy site, their heads and shoulders tied to the axle to pin them in place, and then "exposed, to be eaten by lammergeiers and other ravenous birds and beasts of prey." The Bhutanese believed this to be a very high honor, accorded only to members of the most distinguished families in the valley; they maintained that their feathered undertakers "were fastidious and would not touch low-caste bodies." Apparently White and his guides fell into this category; for although, "One of our guides lay down on the slab, while another lit a smoky fire, devices which, they said, would be sure to attract the lammergeiers from their eyries," the vultures declined to appear.<sup>[295]</sup>

Until the mid-20<sup>th</sup> century, local sky burial rituals were probably the rule rather than the exception in Chinese areas bordering Tibet, which were not only influenced by Tibetan culture and religion, but also often experienced similar ecological conditions. In the early 20<sup>th</sup> century, R. F. Johnston traveled from northern China to Burma by way of the Chinese provinces of Sichuan and Yunnan. Johnston wrote that, "In some parts of the eastern Tibetan states . . . the bodies of the dead are left exposed on the mountain sides until every particle of flesh has been torn off the bones by vultures and beasts of prey."<sup>[296]</sup> In Yunnan, he encountered the Mosuo (or "Mo-so," as he called them), a people of Tibetan extraction who are still heavily influenced by Tibetan Buddhism. Johnston found that, "'The funeral ceremonies of the Mo-so are much the same as those of the Tibetans. . . . The dead are generally cremated or left to the vultures and beasts of prey.'" He added that the wealthiest Mosuo, who settled closest to the Yangtze River, "are perhaps the most civilised members of their race. . . . influenced by the example of the Chinese, [they] seem to be gradually modifying the national customs with regard to the disposal of the dead."<sup>[297]</sup>

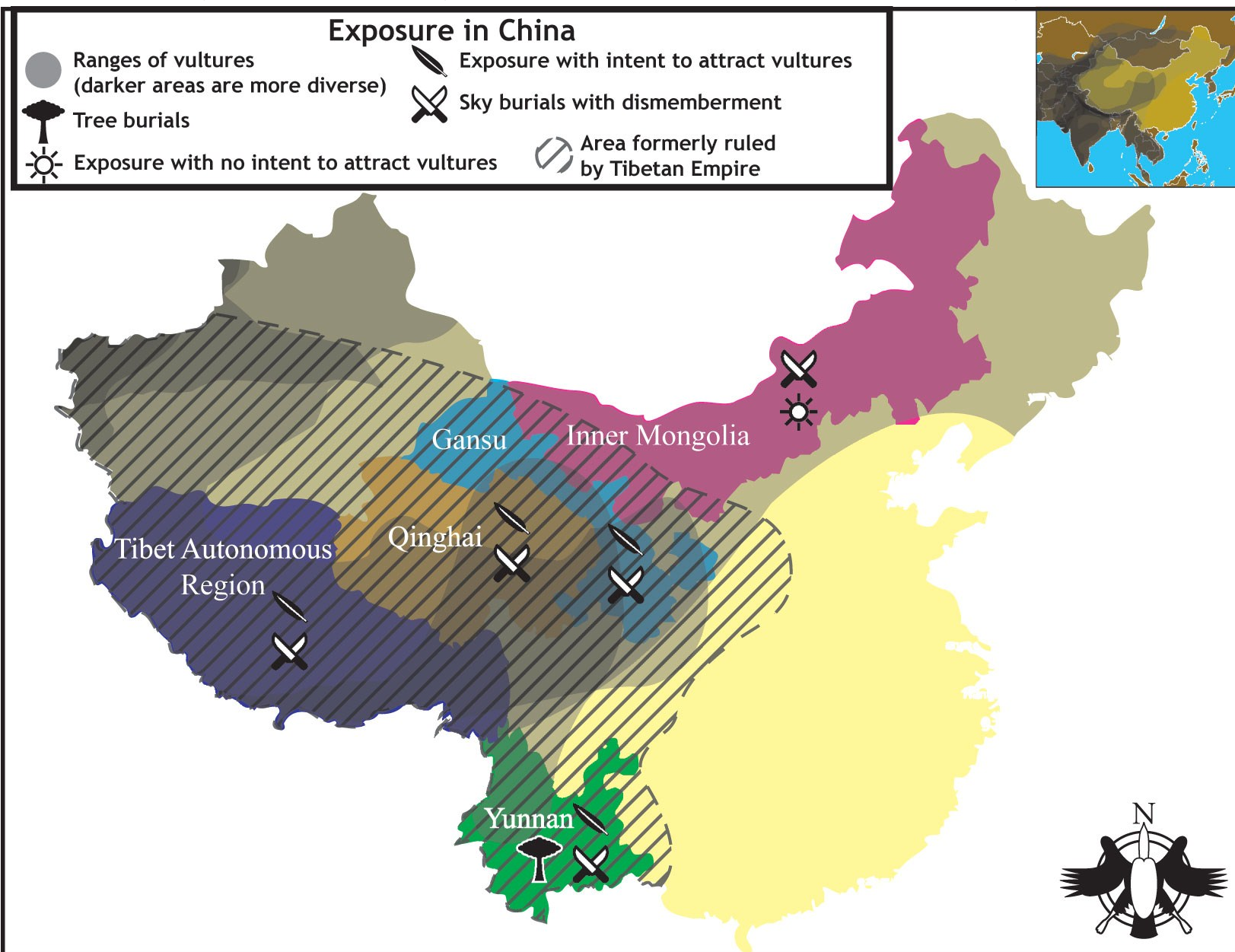
Sky burials did vanish among the Mosuo, to be replaced by cremation; but the vulture rituals remained in practice later in other Chinese border areas.<sup>[298]</sup> Much like Tibet, the Gansu Province lies at a very high altitude, has (or had) substantial vulture populations, and is ruggedly mountainous - especially in the south, which is home to many people of Tibetan descent. After traveling in Gansu in the 1930s, Hans Stübel described the funerals of the Mewu Fantzu, a nomadic tribe of Tibetan descent. Their sky burials were virtually identical to those of the Tibetans, differing mainly in that separate burial sites were maintained for monks and for laymen; and that rather than maintain a distinct caste of undertakers, the Mewu Fantzu expected the ordinary neighbors of the deceased to carry out the funerals. (A much-relished duty, I'm sure.) At the burial site, a pile of Yak dung and food offerings was burned as a sacrifice, and the smoke attracted the vultures. Normally the birds arrived in a few hours at the most, and devoured the corpse quickly; although:

If the vultures do not devour the corpse, the attendants cut it up with a knife, severing the limbs at the joints. Any kind of knife is used for this purpose; afterwards it is washed off and used for other things. The various parts of the corpse are thrown in all directions so that they will be devoured by the vultures. The bones, such as the skull, jaws, and upper thigh bones, are left at the burial place. Many bones are swallowed by the vultures [presumably Lammergeiers].<sup>[299]</sup> [Translated by Freida Schutze]

Sky burials persisted as late as the 1980s in Gansu,<sup>[300]</sup> as well as among some inhabitants of the Qinghai Province bordering Tibet.<sup>[301]</sup> The unexpectedly widespread appeal of sky burial leaves one

wondering if this Tibetan practice influenced even further-flung funeral rituals using vultures, such as those of Cambodia and Siam. During Tibet's imperial period from the early 7<sup>th</sup> to mid-9<sup>th</sup> centuries CE, it conquered much of Central and South Asia, and its cultural and religious influence has spread further still.

Although the sky burials have long been one of the most sensationalized aspects of a widely sensationalized culture, surprisingly little is known about how, when, or why this ritual arrived in Tibet. It's known from Tibetan historical literature that, prior to the triumph of Buddhism over the native Bon religion in the 11<sup>th</sup> century CE, kings were buried or entombed with stones – a method that's still occasionally used among the nomads of eastern Tibet - but as in pre-Buddhist Mongolia, nothing is said about how the common people dealt with their dead. After Buddhism was widely adopted in Tibet, it appears that cremation and perhaps also sky burial became the preferred funerary methods, but there's no hard evidence to prove this.<sup>[302]</sup> Cremation may only have become impractical in Tibet over time due to gradual deforestation; if that was the case, its replacement by sky burial likely took place over many centuries. The inherent efficiency of the sky burial process has inadvertently erased it from history, as the *ja-gor* leave behind neither skeletons nor any artifacts for



archaeologists to find; and the Tibetans seem to have regarded sky burials as everyday occurrences that required little if any comment. Tibetan literature from the past half-millennium rarely mentions *ja-gor* - although written accounts by outside travelers to Tibet, from as early as the 14<sup>th</sup> century, scarcely ever refrain from mentioning it - and earlier literature doesn't mention it all.<sup>[303]</sup>

The question of what earlier rituals the *ja-gor* were derived from has similarly attracted much speculation with little firm evidence. The popular theory that the sky burials were derived from the beholding funerals of the Indian Parsis, is almost certainly wrong, for obvious reasons.<sup>[304]</sup> Notions that the practice was simply invented in the 12<sup>th</sup> century by a sect of monks and then imposed on the entire plateau,<sup>[305]</sup> or even that it was introduced to Tibet in the 18<sup>th</sup> century by a Chinese general,<sup>[306]</sup> are no more credible. More plausible is the idea that the Tibetans adopted exposure after contact with the Persian ancestors of the Parsis during Tibet's period of imperialism in Central Asia- although there are still many differences between the Persian and Tibetan practices that must be accounted for<sup>[307]</sup> - or that the *ja-gor* ritual shares a common ancestry with the much simpler but otherwise not-dissimilar exposure rituals of the neighboring Mongolians. Conceivably all three of these traditions (as well as other, now-extinct Far Eastern exposure practices) ultimately stemmed from an exposure ritual practiced by a prehistoric culture that influenced Tibetans, Mongolians, and Persians alike, though such a hypothesis is probably impossible to prove.

The Tibetans have their own theories about the issue, of course. In their 19<sup>th</sup>-century travels through Tibet, the French missionaries Huc and Gabet came across an elderly Tibetan who regaled them with a story (told to him by the lamas, the old man said) that explained both the origin of the ritual *and* the temperament of the Tibetan people. At the beginning of time, only one adult man and his three children dwelled on earth. They lived in a veritable paradise of pleasant temperatures, gentle breezes, and tea leaves growing in profusion on every hillside. The family lived in bliss for a very long time; but eventually, the father succumbed to the ravages of age, and died peacefully.

Having no experience of death, his children were uncertain what to do with the body, and each had a different opinion about the best way to lay their sire to rest. The eldest child wanted to place their father in a coffin and bury him in the earth; the middle child proposed to build a pyre and consign the body to the flames; and the youngest child wished to carry the body to a mountaintop and expose it there to the vultures, which would surely consume it with cleanliness and alacrity. Despite much arguing, the three children were unable to reach an agreement; and so they decided that the best course of action was to cut their father's corpse into three more-or-less equal pieces, each of which would be disposed of as its recipient desired.

This was done; and with nothing left to unite them, the trio went their separate ways. The eldest, who received the father's head and arms, became the progenitor of the Chinese people, who would bury their dead in coffins, and who would be esteemed far and wide for their cerebral cunning and their handiwork. The middle child, the recipient of the legs, became the ancestor of the Mongols, who (in the opinion of the Tibetans) weren't amply supplied with brains or hearts, but always kept their strong legs firm in their horses' stirrups and solid in their saddles, and who desired to cremate their dead above all else - though they usually had to settle for exposure instead. And the youngest child received the father's torso, which explained why his descendants - the Tibetans - were ever full of heart and guts, and why they exposed their dead on the mountaintops.<sup>[308]</sup>

Whatever their origins, sky burials have clearly proceeded along a track far removed from most other funeral practices. The vast majority of the people in today's world would be horrified at the thought of scavengers consuming their earthly remains after their deaths, due either to religious scruples or to a simple, instinctive aversion towards the idea. With the delicate sensitivity that is so



characteristic of outsiders when describing the rituals of foreign lands, J. H. Edgar declared that though the drawing of any comparisons with the vulture gathering at a *ja-gor* was “certainly odious,” the vultures “were the best imitation of a colony of gigantic maggot-like creatures that a nauseated mind could imagine”<sup>[309]</sup> – and this was hardly the most averse reaction ever expressed by a witness of a sky burial. But to Buddhists, *ja-gor* serves purposes other than mere disposal of the dead. For one thing, sky burial displays in a very dramatic and undeniable manner just how impermanent life is,<sup>[310]</sup> and how death can be harnessed and transformed back into life. William Rockhill proffered an interesting theory about this property of sky burial, involving Buddhist metaphysics:

The reason for the preference given to the "celestial interment" is, I believe, found in the lamaist theory of the "intermediate state" (*bar-do*) between death and regeneration, which it is most desirable to shorten. Its length depends on the time requisite for the complete dissolution of the body, which here means its digestion. . . . So by feeding it to birds the period of *bar-do* is reduced to a minimum.<sup>[311]</sup>

This doesn't mean that the Buddhists who practice sky burial simply don't care about their dead and want nothing more than to be rid of their bodies as quickly as possible; that, as Sven Hedin ungraciously put it, “There is . . . not the slightest touch of sentiment in the funeral customs of the Tibetans and their attitude towards the dead. . . . the Tibetans have no graves and no green-covered mounds where they may devote an hour to the remembrance of a lost happiness.”<sup>[312]</sup> Tibetans normally decline to attend sky burials if they are relations of the deceased, just as Americans normally decline to attend the embalmings of their departed relatives, and for much the same reasons. For the survivors of the dead, a visit to a *mandala* can be just as emotionally wrenching as a visit to a graveyard or memorial. When John Claude White was invited to visit the site in Bhutan where Lammergeiers consumed the dead, a local official who acted as White's guide politely excused himself from the excursion, “as the memories connected with this spot were very painful to him, his daughter only a few years before having been laid on the slab.”<sup>[313]</sup>

The notable difference between these Buddhist rituals and more typical funerals is that the former leave the bereaved with living, breathing creatures – very impressive ones at that - that may in some way help to assuage their sense of loss and remind them that although *a life* has ended, *life itself* has not, and never will. The popular Buddhist Jataka tales tell that during his earthly existence, the lord Buddha willingly gave of his own body in order to feed other living things, as in the fable in which he fed a starving tigress and her cubs with his own flesh; what better way to honor him than by doing the same? Whereas an ordinary burial could be said to selfishly hoard from scavengers their rightful meal, Tibetans believe that their *ja-gor* are generous on the parts of the deceased, their family, and the *rogyapas*, all of whom work together to give charity to the great birds that haunt the land of snows.<sup>[314]</sup>

The *ja-gor* and all of their associated rituals are thus well in line with Buddhist tradition, which has always held profound respect for the place of death in the pageant of life. Buddha himself encouraged his followers to meditate in cemeteries and charnel grounds, in order that they might understand for themselves just how temporary and ethereal earthly existence really was. Padmasambhava, the man who is credited with almost single-handedly establishing Buddhism in Tibet, is said to have lived as a *kapalika* skull-bearer for five years, using human corpses as meditation seats, eating human flesh, and giving and receiving lessons to and from *dakas* and *dakinis*.<sup>[315]</sup> Certain of the *mandalas* where the sky burials take place still have specific spiritual beliefs attached to them; for instance, the burial platform of Sera, near Lhasa, is believed to have literally

flown to its current location from India, and it's held that a person who lays down and rolls about on the platform while it is still bloody from a recent funeral will achieve eternal life.<sup>[316]</sup> The vultures themselves were sought out for similar reasons; Tibetan literature tells of lamas who elected to build monasteries in sight of Griffon nests, the presence of which "reminds the renunciates and meditators of death and of the need to remain steadfast in their caves, meditating."<sup>[317]</sup> No less a personage than the First Dalai Lama, Gendun Drubpa, made a habit of retreating to a favored spot near the bird offering site outside the town of Shigatse. When he later decided to build a monastery some years later, he chose the same site, to be known as Tashi Lhunpo. The throne upon which the Dalai Lama sat as he spoke to his disciples was placed just a few feet from the *mandala* where the vultures were fed. Any person who wished to be blessed by the Dalai Lama had to cross the circle of stone where the dead had been cut to pieces and devoured, thus reminding them of their ultimate fate, and his.<sup>[318]</sup> A most incisive and lucid comment on the metaphorical value of sky burial was offered by Kelzang Gyatso, the Seventh Dalai Lama, in a short verse:

In the morning, you sit there, excited and healthy,  
Talking about how to take care of your friends  
And finish off your enemies.  
By dusk, at the sky-burial rock,  
Your corpse is fed to vultures  
And gets eaten by dogs.  
Isn't that really what happens?<sup>[319]</sup>  
[Translated by Matthieu Ricard]

Unfortunately, this harmonious and ancient association of believers and scavengers was doomed to be overrun by the juggernaut of 20<sup>th</sup>-century ideology. When newly communist China conquered and annexed Tibet in 1950, the occupying Chinese soldiers and government officials were initially ordered to respect local customs, including that of *ahimsa*. The Chinese authorities specifically forbade their underlings to kill any kind of wild bird in Tibet,<sup>[320]</sup> presumably in order to avoid unnecessarily antagonizing the Tibetans. As the occupation wore on, this restraint deteriorated, as did Chinese tolerance for Tibetan religious rituals; and with the advent of the ultra-left wing Cultural Revolution in China in 1966, attitudes towards both Tibetan wildlife and Buddhism became unmistakably hostile. The fanatical Red Guards, who acted as the vanguard of the Revolution, took it upon themselves to shoot most any animals that they came across (including birds), and their campaigns particularly targeted religious practices and what they perceived as manifestations of "barbaric" Tibetan culture.<sup>[321]</sup> As one of the most visible and dramatically different - not to mention religious, and therefore un-communist - manifestations of that culture, the *ja-gor* were attacked especially vigorously.

When the state-sponsored chaos of the Cultural Revolution petered out in the early 1970s, the Chinese military and civil authorities had effectively banned the *ja-gor* outright, along with all other religious practices,<sup>[322]</sup> and demanded that the Tibetans instead bury or cremate their dead, heedless of the fact that either practice was impractical if not impossible in most of the rocky, tree-sparse plateau. Tibetans who defied the ban and carried out sky burials anyway were routinely executed. The vultures themselves came under fire; if Chinese soldiers came upon a *ja-gor* in progress they would club to death any Himalayan Griffons that couldn't take flight from the interlopers quickly enough, and soldiers also spent time in the field shooting Griffons and Lammergeiers. Relatively tame and entirely unused to hostile actions by humans, the vultures were easy targets. By the end of

the 1970s, hundreds of Lammergeiers and thousands of Himalayan Griffons had been slaughtered by the People's Liberation Army (PLA) as part of its quest to "civilize" the backward inhabitants of Tibet.<sup>[323]</sup>

While the banning of the funeral ritual and the attacks on the Tibetan vultures were drastic, neither event was entirely without historical precedent. During China's centuries-long period of (often indeterminate) political suzerainty in Tibet, Chinese government officials had attempted to end the tradition of *ja-gor* at least twice, in both cases as part of larger efforts to suppress Tibetan culture. In 1793, during an attempt to reform Tibet, the Qing government banned sky burials throughout the country with an edict that revealed just how culturally distant the Confucian Chinese were:

In order to re-affirm the respect for the relationship between family members and to improve social customs, the carving up of the remains of the dead shall be strictly forbidden. Every human being is as much indebted to his parents for his upbringing as he is to the sky and the earth. So one should support one's parents and bury them in the earth after they have died. . . . It is a long established custom in Tangut [Tibet] that after a person has died, his remains are carved up and fed to vultures or dogs. . . . Sometimes the remains are even chopped up and mixed with barley flour as food for vultures or dogs. These are bestial practices.<sup>[324]</sup> [Translated by Qu Zingshan]

The Chinese proclamation went on to state that anyone who participated in such a funeral, encouraged one, or even *witnessed* one, would be punished with summary execution – by “slicing their bodies into small pieces.” Despite the severity of the penalty, the new law had no apparent effect on the practice of *ja-gor*.<sup>[325]</sup> Similarly, in 1906, a government official installed by a punitive expedition in the eastern province of Kham demanded an end to the Tibetans’ “barbarous methods of burial,” as part of an overall effort to make the Tibetans under his rule more like the Chinese.<sup>[326]</sup> This, too, notably failed to change the Tibetans’ ways; in 1914, a British consul in Kham reported that, “The Chinese laws forbidding . . . native practices - notably concerning the disposal of the dead - are ignored. . . . In no way have [the Tibetans] responded to the efforts of the Chinese to impose Chinese laws and customs and language on them, and the magistrates have not felt themselves strong enough to attempt coercion.”<sup>[327]</sup> The crucial difference between these earlier attempts to do away with sky burial and that which followed in the wake of the Cultural Revolution was that, in the latter case, the Chinese government had the power (both political and military) to enforce its stated intention of culturally rebranding Tibet – and to impose the ultimate penalty on both people and vultures who stood in its way.

Deliberate attacks on Tibetan vultures by outsiders were also not wholly novel, though the birds had never been killed in any numbers that approached the body counts amassed by the PLA. Despite Tibet's self-imposed isolation, occasional European and American explorers did make their way to the reclusive nation throughout the 19<sup>th</sup> and early 20<sup>th</sup> centuries, and they and their servants often proved less-than-willing to respect the Tibetans’ strictures against killing the sacred scavengers. In his *Diary of A Journey Through Mongolia and Tibet in 1891 and 1892*, William Rockhill described an incident in which his drunken cook, “bedecked in all my finery, [had] been out shooting the vultures around Kumbum, much to the dismay of the lamas, for they are *quasi* sacred, being the last, though temporary resting place of the deceased lamas.”<sup>[328]</sup> Even if we say nothing of the traditional protection afforded to the vultures by the Tibetans’ Buddhist doctrine of *ahimsa*, the psychological pain inflicted upon the Tibetans by seeing their vultures killed must have been almost unbearable. It could be compared to the distress that would befall a devout Catholic or Muslim community if its



ancestral gravesites were deliberately and maliciously destroyed. No less an authority than the Chinese government was willing to admit that PLA soldiers who shot vultures were sometimes attacked in turn by Tibetans,<sup>[329]</sup> and such angered resistance to the extermination of the faithful birds was probably more common than anyone outside of Tibet will ever know.

The small number of Tibetan villages fortunate enough to have ready access to rivers could still carry out water burials, in which bodies were chopped into pieces small enough for fish to swallow and then scattered into the water;<sup>[330]</sup> but most people inhabiting the high, dry plateau had no such option. Tibet's first modern crematorium, which requires no wood to operate, wasn't constructed until 2000, and even China's Xinhua State News Agency has acknowledged that the facility "is not favored by local Tibetans" and that about 80% of them instead opt for the traditional sky burials upon their deaths.<sup>[331]</sup> The only other Tibetan animals that could dispose of bodies, Dogs and Wolves, were also killed in large numbers by the PLA during the 1960s and 70s. With the near-disappearance of all scavengers by the late 1970s, many Tibetan corpses were simply carried a safe distance from any nearby settlements and there left to rot, as there was nothing else that could be done with them.<sup>[332]</sup>

The legal status of sky burials seems to have been less clear-cut during most of the 1980s, likely due to the tragically brief period of political liberalization in China prior to the widespread Tibetan unrest starting at the end of 1987 and the Tiananmen Square Massacre in 1989. An official announcement from the Tibet Autonomous Region (TAR) government in 1985, which included legislation pertaining to the *ja-gor*, may have amounted to a tacit acknowledgment that the blanket ban on the practice had failed. Outsiders were allowed to witness, photograph, and write about *ja-gor* during the 80s without any significant governmental interference<sup>[333]</sup> – and sometimes even with active assistance. Peter Somervill-Large, an Irish travel writer who visited Lhasa in 1987, recalled that during his visit, buses full of foreign tourists were driven out to the local *mandalas* to watch and photograph sky burials. When the vultures were predictably disturbed by too many onlookers and refused to show up, the Chinese authorities "had ideas of tidying up the bloodstained spot where the undertakers did their work and constructing a viewing platform with telescopes for a distant inspection so that the vultures would be kept calm and happy."<sup>[334]</sup>

These ideas were never put into practice, for this toleration represented only a temporary respite from a more hard-line policy towards the sky burials; a policy which most definitely was implemented in the 1990s. Two European ornithologists, C. Orden and N. V. Paklina, visited Tibet annually after 1988. When traveling in western Tibet, once a stronghold of the Himalayan Griffon, they didn't see a single one of the birds after 1995. Even in the central valley surrounding Lhasa, there was only a small population of Griffons, estimated at no more than 300 birds. Another vulture commonly seen at *ja-gor* prior to the Chinese invasion, the Pondicherry Vulture, had apparently also been persecuted; Orden and Paklina rarely saw it in 12 years of Tibetan travels, spotting a few individuals only in the neighboring provinces of Yunnan and Gansu. They also spoke to many Tibetans when Chinese overseers were not present, and by doing so learned what had happened to the *ja-gor* rituals and the vultures during the preceding decades; the results of their travels were published in the Dutch ornithological journal *De Takkeling*. The Chinese authorities apparently feared that despite the slaughter, the vultures might yet recover their numbers to the point where *ja-gor* could again become widespread, and so ordered the PLA to carry out intermittent vulture-killing operations throughout the 1980s and 90s. During trips in 1992 and 1995, Orden and Paklina witnessed PLA excursions during which Lammergeiers and Himalayan Griffons were deliberately shot in large numbers. They also discovered the remains of many dead vultures around Buddhist

monasteries, mute testaments to the violent changes that had taken place in Tibet in the time since the birds had found sanctuary at such places.<sup>[335]</sup>

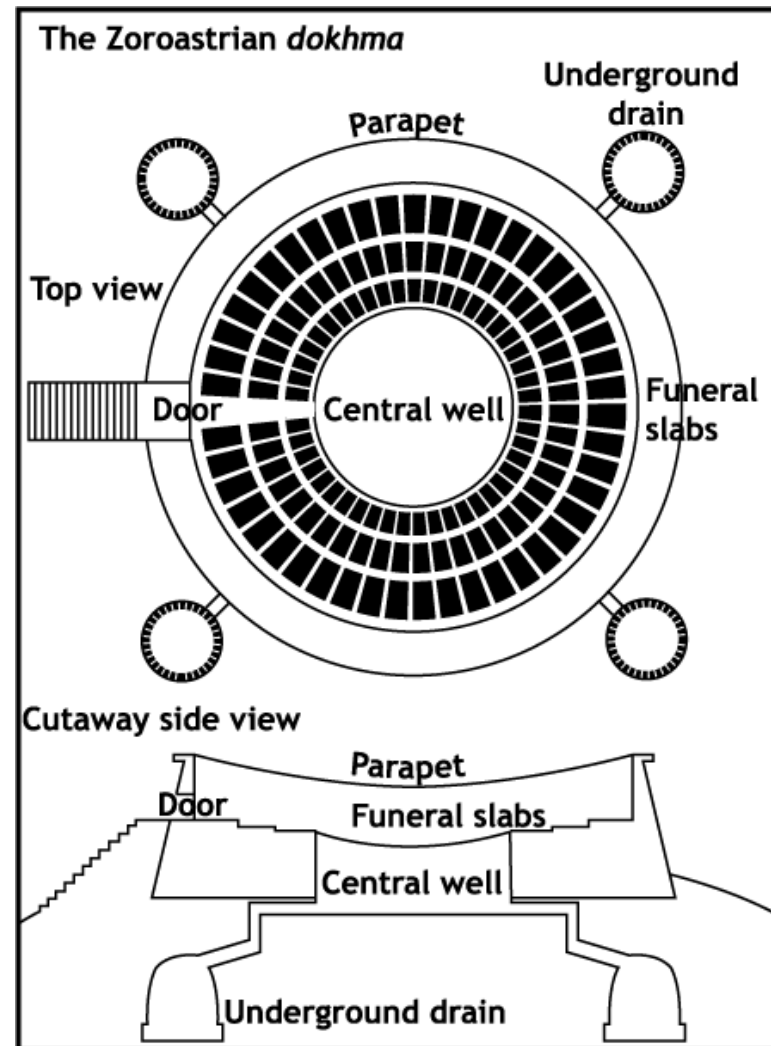
The TAR government, which has never made any public mention of vulture-killing as an official policy, announced strict regulations upon the operation and attendance of sky burials in 1990 and 1996. The new rules made public in the latter year included stipulations that all sky burials must receive prior government permission, and that all lamas who presided over sky burials must receive official approval and undergo studies with the local neighborhood committees (which include Communist Party representatives), the better to "raise the skills and morals of sky burial masters." The announcements also included prohibitions upon the witnessing, filming, or photographing of sky burials by outsiders; officially in order to keep "unwanted observers away from the site of the deeply religious practice," though at least one commentator has suggested that these restrictions were really intended to prevent anyone but the *rogyapas* and the vultures from seeing the internal injuries that had been inflicted on political prisoners while they were in Chinese custody.<sup>[336]</sup>

By the late 1990s, the restrictions upon the practice seem to have been relaxed again, at least in the central valley surrounding Lhasa – possibly because, in 1997, monks from several monasteries in Lhasa courageously approached the Chinese authorities and pointed out to them that, according to its own constitution, the government of China was supposed to be allowing the minority peoples under its rule to practice their own cultural traditions without interference.<sup>[337]</sup> Although reliable information is spotty at best, the situation for the vultures and for the tradition of *ja-gor* may have changed slightly for the better during the past decade. The construction of the high-altitude Qingzang Railway between the TAR and the neighboring Qinghai Province was completed between 2001 and 2006; and if one is willing to believe the Xinhua press releases (which, as far as I know, have not been contradicted by eyewitnesses), the railway planners and construction crews took pains both to route the railway around, rather than through, *mandala* burial sites, and to avoid disturbing the vultures during its construction.<sup>[338]</sup> The Chinese government has passed recent regulations prohibiting many forms of human disturbance around *mandalas*; more puzzlingly, it's also banned sky burials for persons who have died of poisons or infectious disease, supposedly to keep the vultures safe from secondary infection or poisoning,<sup>[339]</sup> although there are still no specific protective laws for any of Tibet's vultures.<sup>[340]</sup> It's impossible to say for certain if the persecution of *ja-gor* and their attendant vultures has ended for good in Tibet. It does seem plausible that the Chinese government has realized that such persecution served no practical purpose other than to further antagonize the Tibetans, and so has returned to the atmosphere of relative tolerance of their funeral rituals that prevailed prior to the Cultural Revolution.

More than a millennium earlier, the adherents of another vulturine funeral ritual had faced a similar invasion and occupation of their homeland, and struggled with comparable intolerance of their practices among their new, culturally and religiously distinct overlords. There was one crucial difference between the Tibetan Buddhists and the Persian Zoroastrians, however: the Zoroastrians were fortunate enough to have some freedom of movement, in a world not so overcrowded and strictly regulated as today's. As we learned [in the last chapter](#), most of the Persian Zoroastrians decided to flee their increasingly hostile homeland in the tenth century CE and headed east, ultimately settling on India's western coast. The Indian authorities there accepted the settlement of the outsiders that they called "Parsis," though only on the conditions that they would neither intermarry with Hindus or Muslims nor attempt to convert any of the locals to Zoroastrianism. Although they also largely abandoned their old language for day to day use in favor of Indian tongues, the Parsis prospered in their new land. By the middle of the 14th century they were able to

construct new *dokhmas*,<sup>[341]</sup> the structures where their beholding rituals were held, and even managed to build several in the vicinity of the teeming city of Bombay (now Mumbai) during the 17th century.<sup>[342]</sup> The *dokhmas* would eventually appear wherever large Parsi communities congregated;<sup>[343]</sup> by the late 19th century, there was a total of some 120 *dokhmas* in British India, the area also including what are now the sovereign nations of Pakistan, Burma, and Bangladesh.<sup>[344]</sup> *Dokhmas* are known to English speakers as “Towers of Silence,” a term coined by an Englishman named Robert Xavier Murphy in the early 19th century;<sup>[345]</sup> partly because the dead (and, for the most part, the vultures) are indeed silent, but probably also because the most famous *dokhmas* upon Malabar Hill and their lush, peaceful surroundings were much more quiet than the rest of the city of Mumbai.

These odd “towers,” which soon became such a characteristic feature of the Indian landscape, are squat, circular buildings that from the outside somewhat resemble severely truncated turrets of medieval European castles. A *dokhma* (right) is entirely open to the sky at the top, and is traditionally placed high on an isolated hill far from any human residences. The interior of the *dokhma* contains a central well, surrounded by three concentric circles of stone slabs that are depressed slightly below the level of the inclined stone floor, with the smallest slabs closest to the well and the largest slabs furthest from it. The inner circle is reserved for the bodies of children, the middle circle for women, and the outer circle for men. Official Zoroastrian corpse bearers, called *khandias*, are the only living humans who may enter a *dokhma*. When carrying the corpse upon its metal bier, they pause outside the tower walls to allow the mourners to speak their last farewells, then take the body up the *dokhma* steps, through a heavy iron gate, and inside, where it is placed on a slab in the appropriate circle. Then the bearers retreat, and the vultures move in. White-rumped Vultures, Indian Griffons, and Slender-billed Griffons were the most common



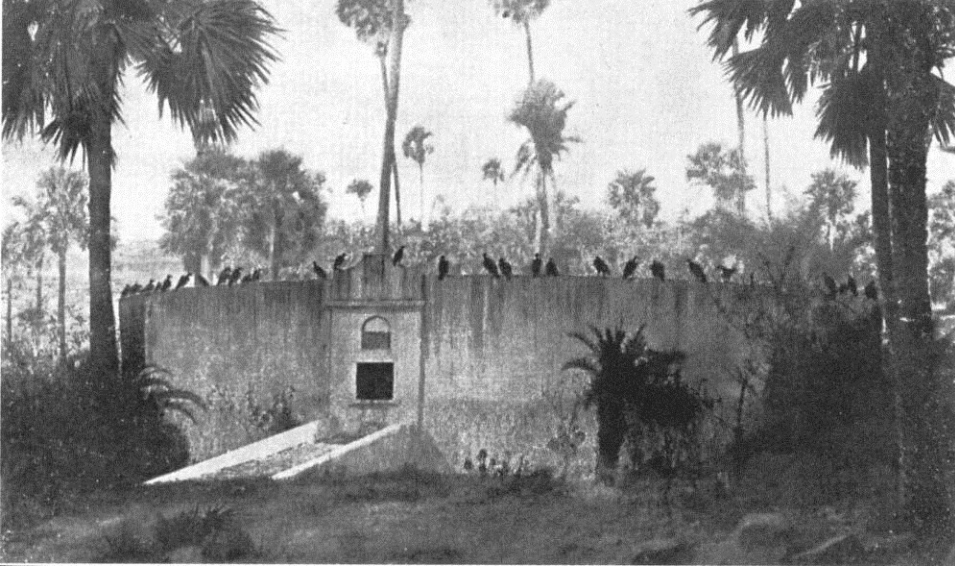
guests at the towers, although Egyptian Vultures and the rare Pondicherry Vultures sought out the *dokhmas* as well. White-rumped Vultures sometimes perched shoulder-to-shoulder on the tower walls in hundreds, encircling the bodies within like sentinels against evil, before swooping down onto the slabs for their meal. It seldom took such an assembly of vultures more than an hour to skeletonize a single body. Most of the bodily material that the vultures don't devour runs down the inclined floor into the central well, which is regularly sprinkled with acid as an aid to sanitation. The remaining fragments run into the drains attached to the well, and are routed into stone-lined subterranean chambers where they eventually decay. Finally, from time to time the corpse bearers re-enter the *dokhma*, gather whatever bones still remain, and drop them into the central pit to be well and truly obliterated.<sup>[346]</sup>



Given the complexity of this ritual, and the necessity of bringing the dead to a not-always conveniently located *dokhma* for it to be performed, it isn't surprising that some Zoroastrians have recently turned to other methods of disposal for their dead. Parsi beholding has apparently been in decline since before the 1800s, although the most traditional Zoroastrians, whether living in India or elsewhere, still send their dead to the *dokhmas*. More modernistic Parsi communities in India instead use typical graveyards, with a twist: the dead are buried in concrete-lined pits, and without coffins, to ensure that wood and earth remain unpolluted. The Zoroastrians that still dwell in Iran use burial as well; and many Zoroastrians around the world use cremation to lay their dead to rest, under the reasoning that the prayers said for the sake of the deceased, and the rituals used to drive away evil, are more important considerations than the final fate of the body.<sup>[347]</sup>

Where functional *dokhmas* still exist, they are overwhelmingly used by Zoroastrians in preference to other funerary options – even amputated limbs are normally taken there rather than cremated or buried. The design of these unique structures has been evolving since the 16th century; but they all have certain architectural traits in common. The towers are always built of the hardest available material, usually either bricks or stone, the better to last for centuries without polluting their surroundings. Tower walls are always about 10 to 15 feet (3 to 4.6 m) high, but the diameter of a tower varies considerably, from less than 30 feet (9 m) across for small private structures to almost 100 feet (30 m) across for the giant Anjuman *dokhma* built in 1844. The entrance of the *dokhma* always faces east, towards the rising sun, and is flanked by two apertures that allow the sun's cleansing rays to stream to the bodies inside. The first *dokhma* considered to be of a fully modern design, with a ramp and doors to provide access for the pallbearers, was built in 1747 in Navsari, on the coast north of Mumbai. Earlier *dokhmas* had presented an unbroken blank wall to the world, with no ramps or doors. These made it difficult for grave-robbers to steal into the tower, but they also made it difficult to carry the biers inside, as a rope ladder had to be climbed to gain entrance.<sup>[348]</sup> A newly constructed *dokhma* couldn't be used by the Parsi community at large until it had been used to dispose of the body of an entirely innocent person who was devoid of sin; in practice, this meant either an exceptionally pious man or an infant which died before being named. After that initial beholding, the tower was ready for centuries of use; and since the largest *dokhmas* could hold as many as 300 bodies at any one time,<sup>[349]</sup> each tower and its accompanying vultures could be expected to serve as the final resting place for tens of thousands of Parsis over its lifetime.

Undoubtedly the best-known of the towers are those clustered in the Doongerwadi ("Orchard on a hill")<sup>[350]</sup> complex on Malabar Hill, at the southern tip of Mumbai, the city where about 70% of the current Parsi population dwells. The oldest of the Doongerwadi *dokhmas* is a tower built in 1672-73, a fairly primitive design which has no central well, and which has long been disused. Next was a tower built in 1754, a fully modern construct which was still used into the 20th century. A third tower was erected at Doongerwadi in 1778, and two more of increasing size in 1832 and 1844. These five *dokhmas* form the heart of Parsi funerary ritual; to be rid of one's polluting flesh in the Doongerwadi is recognized by Zoroastrians around the world as a high honor. Two smaller towers were built near the complex by the wealthy Dadiseth and Readymoney families for their exclusive private use, but these have since been abandoned.<sup>[351]</sup> Doongerwadi also includes a variety of Zoroastrian temples and a verdant forest, the better to attract vultures to the surroundings. When construction at Doongerwadi began in the late 17th century, the area was so wild that women were originally barred from funeral processions for fear that they would be singled out for attack by the Tigers and Striped Hyenas that lurked in the surrounding forest. But the sprawling development of Mumbai has since caught up with Doongerwadi; by the 1970s, houses and apartment buildings were being built right at the edge of the



complex, and some Parsis felt that the vultures were starting to shy away from the *dokhmas* due to disturbance from workers and machinery, not to mention the felling of many perching trees. This urban development was also problematic because the interiors of the *dokhmas*, and all that went on there, could actually be seen from the balconies of the higher buildings - which rather defeated the point of performing the beholdings inside of the towers.<sup>[352]</sup> Still, the *dokhmas* of

Doongerwadi remained the ultimate destination for the vast majority of Parsis well into the 1990s, despite the many accusations of archaic obsolescence that were leveled at them from within and without the Parsi community.

Although ignorant observers have always been inclined to label beholdings and the Tibetan sky burials with terms like "primitive" and "barbaric," the truth is that these rituals are complex, intricate, and by any measure very highly developed; they no more resemble their prehistoric antecedents than a modern cemetery funeral resembles the act of tossing a corpse into a sinkhole. The rituals of the Tibetan Buddhists and the Parsis are only the most famous and most elaborate rituals of exposure; other religions and ethnic groups had their own, simpler practices for using scavengers to deal with the dead. Many of these were similar to the ancient rituals familiar to us from last chapter's [description of Çatal Höyük](#): a platform or pile of wood would be constructed, a body would be placed upon it, and after making the appropriate prayers and incantations, the body would be left to the scavengers. Such rituals are still practiced by some cultures in the Far East, but they were once much more common, possibly even rivaling burial and cremation in popularity. The Miao people of southern China used to expose their dead on wooden platforms, but due to the influence of the majority Han Chinese they now practice standard burials.<sup>[353]</sup> The Yumbri, a nomadic gathering people of northern Thailand, still construct a pile of sticks and branches, place the body atop the pile, and abandon it to the forest.<sup>[354]</sup> And the Moken boat people of the Southeast Asian coast build low platforms on deserted islands to expose their dead upon; they believe that the soul of a person buried in the earth cannot survive there, and so will be destroyed.<sup>[355]</sup>

There's an important difference between these rituals and the more complex rites of the Tibetans and Parsis; namely, that there is no explicit intention on the part of the people who practice exposure (or the previously-mentioned tree burials) to attract or otherwise encourage scavengers to devour the dead. Although simple exposure funerals are sometimes found in places where there are no vultures, like Australia and New Guinea, sky burials, celestial funerals, and beholdings were able to exist and evolve only in areas with strong vulture populations. I'm sure it's quite obvious to the people who practice simple exposure that the bodies exposed on the piles or platforms would soon be eaten by scavengers; but to the bereaved survivors, it makes no difference what happens to the body once it has been placed on the platform or hoisted into the trees. Once the letter of the ritual has been fulfilled, their responsibility to the dead ends; the ultimate fate of the body does not concern them, although (as at Çatal Höyük) the bones may be collected later, and buried or used in services to remember the departed. Given centuries to evolve freely without outside interference, such simple

rituals could well evolve into ceremonies rivaling those of the Zoroastrians and Tibetans in complexity.

If one looks at this entire category of funerary ritual (the “Cadavers As Bird-Feeders” category) as a scale of progression, it appears that there are several different stages of exposure, progressing from the most ancient and least complex to the least ancient and most complex. The simplest and oldest stage is represented by the act of simply leaving the body out in the open where it fell, and abandoning it to the scavengers; this was the norm for most of humanity’s existence, being superseded no earlier than the arrival of the Neanderthals around a quarter-million years ago. Building a pile of material to place the body upon, as the Yumbri do, is slightly more complex. Then there is the more deliberate act of transporting the body to a special area reserved for exposure; and then the ritual of building a dedicated structure, like a platform, to expose the dead upon; this was practiced more than 8,000 years ago by the inhabitants of Çatal Höyük. Tibetan Buddhists and, formerly, Thai Buddhists have gone further still, by dismembering the body before feeding it to the vultures; although this act now carries important spiritual significance, it probably originated simply as a commonsense way of quickening the process by making it easier for the vultures to gain access to all of the flesh. The Tibetan practice of smashing the bones and turning them into scavenger-edible paste is a more recent development; known as the “celestial method,” it was originally restricted only to funerals of the very rich, who could pay for the extra labor that the bone-crushing entailed, but it has since become more widespread.<sup>[356]</sup> One might think that celestial burials would be more prevalent in areas where Lammergeiers, with their unique ability to swallow and digest large bones, are scarce or unknown, but that doesn’t seem to be the case.

Prompted by different circumstances, Zoroastrians have gone in a different direction; rather than dismembering their bodies, they have built large, elaborate, dedicated stone structures where the exposure rituals are intended to take place.<sup>[357]</sup> The earliest *dokhmas* were built only to hide the more gruesome details of the Zoroastrian ritual from prying and unsympathetic eyes; but since then the builders of the *dokhmas* have made a virtue of necessity by including features in the buildings, like the central drains, to ensure that the beholdings held there will be cleaner and more efficient than the old, pre-*dokhma* beholdings. In their aim of ridding the living of the dead by use of scavengers, Parsi beholdings weren’t all that different from the ancient Indian practice of fractional burial, or the modern Hindu practice of floating corpses in the Ganges River. Such bodies are typically eaten by crocodiles, turtles, or fish; and sometimes even by White-rumped Vultures, which, as one British observer noted, “may . . . be seen perched singly on a dead human body floating down the Ganges with their wings widely spread in order to steady themselves while they enjoy their ghastly meal.”<sup>[358]</sup> The native people of India, accustomed as they were to seeing dead creatures of all sorts being eaten by vultures, and generally believing in the concept of reincarnation (which demands a certain lack of anthropocentrism), saw little to comment upon in the Parsi rituals.

India’s later rulers, the British, tolerated the beholding rituals as well, although they were far less circumspect about commenting upon them. It must have been quite a shock for many of the prim and proper Victorian expatriates when they first came face-to-face with the beholdings and their aftereffects. In his autobiography *Something of Myself*, Rudyard Kipling recalled “gaily dressed Parsees” from his youth in Bombay, and remembered that his family’s house wasn’t far from the Towers of Silence on Malabar Hill. The proximity of the Towers and the daily commutes of their attendant vultures would likely explain why his mother, to her great distress, once found “a child’s hand” laying in her garden. Young Rudyard heard about this unfortunate discovery from his Indian



nurse, and wanted to see it for himself, but his mother flatly refused to indulge him, or even to answer his questions about the wayward appendage. Its final fate is sadly unrecorded.<sup>[359]</sup>

British colonial administrators held the Parsis in high esteem, considering them honest, hardworking and eminently trustworthy; apparently, the British East India Company granted permission for the construction for the first Bombay *dokhma* in the 17th century specifically because it hoped to attract more Parsis to the city.<sup>[360]</sup> But the Zoroastrian beholding rituals were often mocked and reviled by outsiders, British and otherwise, and their place in Parsi society was misunderstood. A typical such comment on the practice in a respected British compendium of religion declared that “the religion of Zoroaster seems to have imposed the rite of exposure of the corpse . . . in comparatively civilized times on a reluctant people”<sup>[361]</sup> - which is both astoundingly ignorant and quite wrong. In 1953, an American funeral director smugly and inaccurately wrote that, “The entire funeral process is such a primitive ritual that it has become a source of embarrassment to modern Zoroastrians. . . . Enlightened Zoroastrians have long sought a substitute system for disposal of the dead which would appear less barbarous without offending the basic tenets of their religion.”<sup>[362]</sup> The possibility that public disparaging of beholding and predictions of its imminent abandonment could become self-fulfilling prophecies seems not to have occurred to the critics of the Parsis' venerable ritual (not that it would have bothered them even if it did).

For many Western travelers to Bombay, it was a rite of passage to pen a voyeuristic first-hand description of the beholdings, laced with barely disguised fascination or undisguised disgust (or both).<sup>[363]</sup> One of the first known Christian travelers to India, a Dominican friar named Jordanus who journeyed there in the early 14th century, saw fit to mention the ritual in a very brief account of the Gujarat Zoroastrians: “There be . . . pagan-folk in this India who . . . bury not their dead, neither do they burn them, but cast them into the midst of a certain roofless tower, and there expose them totally uncovered to the fowls of heaven.”<sup>[364]</sup> A far more famous writer penned a far more detailed account of the goings-on at *Doongerwadi* in the 19th century:

On lofty ground, in the midst of a paradise of tropical foliage and flowers, remote from the world and its turmoil and noise, they stood - the Towers of Silence. . . . The vultures were there. They stood close together in a great circle all around the rim of a massive low tower - waiting; stood as motionless as sculptured ornaments, and indeed almost deceived one into the belief that that was what they were. . . . A funeral procession entered the great gate, marching two and two, and moved silently by, toward the Tower. . . . The bearers unlocked the Tower's sole door and disappeared from view within. In a little while they came out . . . and locked the door again. Then the ring of vultures rose, flapping their wings, and swooped down into the Tower to devour the body. Nothing was left of it but a clean-picked skeleton when they flocked out again a few minutes afterward.<sup>[365]</sup>

Mark Twain was merely *assuming* that there was nothing left but a “clean-picked skeleton,” of course; but he was probably correct, there being a full complement of vultures present. He included this description in the book-length account of his round-the-world journey, *Following the Equator*; and he espoused a relatively equable view of the Parsi ritual, noting that, “As a sanitary measure, their system seems to be about the equivalent of cremation, and as sure,” and pointing out that “we should shudder at burial if we allowed ourselves to think what goes on in the grave.”<sup>[366]</sup>

Some non-Parsis have taken even more of a liking to the beholding rituals, to the extent of practicing flattery by imitation. In 1987, a 67-year old South African farmer named Mickey Lindbergh fatally shot himself near a vulture feeding station on his land, apparently in hopes that the local birds would devour his remains (which they did, over a period of three days). Lindbergh's

unusual choice of funeral arrangement was thought to have been inspired by his outsider's fondness for the Parsis' beholdings.<sup>[367]</sup> The "green burial" movement of North America and Europe, which encourages disposal of bodies by methods with minimal environmental impact, has also seen something admirable in the Parsi tradition. As of this writing, the pro-green Ethician Church has obtained legal permission for and is planning to construct a functional *dokhma* on the shores of Lake Livingston in eastern Texas, which would be serviced by the area's large numbers of Black and Turkey Vultures.<sup>[368]</sup> The likelihood of American beholdings ever gaining any degree of mainstream acceptance does seem remote at this juncture, though we shouldn't rule out the possibility of a bona fide mortuary fad if the practice ever makes it to California.

The most-read (and most-quoted) account of a Parsi beholding was probably that of a British professor, Monier Williams, who contributed an account of the towers and their goings-on to an issue of the *Times* of London, published on January 28, 1876. Williams was somewhat unimpressed with the *dokhmas*, describing them as "simply masses of masonry, massive enough to last for centuries, built of the hardest black granite, and covered with white chunam" and deciding that, "Towers they scarcely deserve to be called; for the height of each is quite out of proportion to its diameter." And yet, though he found the structures "wholly destitute of ornament, and even of the simplest moulding, the parapet of each tower possesses an extraordinary coping, which instantly attracts and fascinates the gaze. . . . a coping formed, not of dead stone, but of living vultures."

Williams witnessed the funeral of a child, and marveled at how the corpse-bearers

speedily unlocked the door, reverently conveyed the body . . . into the interior, and, unseen by any one, laid it uncovered in one of the open stone receptacles nearest the central well. In two minutes they re-appeared with the empty bier and white cloth; and scarcely had they closed the door when a dozen vultures swooped down upon the body, and were rapidly followed by others. In five minutes more we saw the satiated birds fly back and lazily settle down again upon the parapet. They had left nothing behind but a skeleton.<sup>[369]</sup>

Of course, the last word on the subject should go to a Parsi: a Secretary of the Parsi, named Punchayal, who was questioned about the beholding rituals by the *Times* as an accompaniment to Williams's article:

Our Prophet, Zoroaster, who lived 6,000 years ago, taught us to regard the elements as symbols of the Deity. Earth, fire, water, he said, ought never, under any circumstances, to be defiled by contact with putrefying flesh. Naked, he said, we came into the world, and naked we ought to leave it. But the decaying particles of our bodies should be dissipated as rapidly as possible, and in such a way that neither Mother Earth nor the beings she supports should be contaminated in the slightest degree.

In fact, our Prophet was the greatest of health officers, and, following the sanitary laws, we build our towers on the tops of the hills, above all human habitations. We spare no expense in constructing them of the hardest materials, and we expose our putrescent bodies in open stone receptacles. . . . to be dissipated in the speediest possible manner, and without the possibility of polluting the earth or contaminating a single living being dwelling thereon.

God indeed sends the vultures, and, as a matter of fact, these birds do their appointed work much more expeditiously than millions of insects would do if we committed our bodies to the ground. In a sanitary point of view nothing can be more perfect than our plan. Even the rain water which washes our skeletons is conducted by channels into purifying charcoal.<sup>[370]</sup>

The Parsis were always quick to attribute their relative immunity from the plagues that commonly swept Bombay to the sanitary value of their beholdings,<sup>[371]</sup> even though their community's relative wealth and isolation from the masses probably had more to do with that good fortune.

Although it cannot be denied that the beholdings seem rather exciting and morbidly thrilling when compared to most other funerary practices, it's also quite clear that the Parsis saw no violence in this ritual; no conflict, and no carnage. Rather, the intent of a beholding was to bring peace to all concerned. The living would have the peace of a more hygienic world, the dead would have the peace of a proper funeral, and the vultures would have the peace of full bellies. Throughout the Far East, it seems that the most common and most valued gift that could be bequeathed by vultures was peace; even if, as in Tibet, that peace was eventually rudely shattered. Vultures contributed serene tranquility in many forms: the peace of cleanliness, the peace of justice, the peace of knowing one's place in the universe; and, in one lovely Indian fable retold by Joseph Gaer, the peace of a war's end.

This story tells of a long-ago war between the land birds and the water birds. Because of a series of diplomatic contretemps, King Jewel-Plumes, the peacock ruler of the land birds, had decided to conquer the kingdom of Golden-Tipped, the flamingo king of the water birds. Throughout the tale, King Jewel-Plumes is given wise advice by his prime minister, Far-Seeing Vulture, who clearly has far more experience of the cost of war than any of the other birds. Alas, the prime minister's words of caution are unheeded by Jewel-Plumes, and a terrible battle resulted in which a great many peacocks were killed. In despair over this defeat, the peacock king turns to Far-Seeing Vulture, who advises him to advance on the fortress of the flamingoes and blockade their gates. This strategy succeeds, and the prime minister advises King Jewel-Plumes to make peace with King Golden-Tipped; but the peacock is too proud over his victory to listen. The moment is soon lost, as King Golden-Tipped calls upon his ally, Great-of-Strength the Stork, to attack the peacocks' rear. With that mortal threat hanging before them, King Jewel-Plumes finally, reluctantly, sends Far-Seeing Vulture to negotiate a peace.

Knowing that the vulturine prime minister had been against the war from the very start, King Golden-Tipped and his court welcomed their visitor warmly. The flamingo king asked Far-Seeing Vulture how many different kinds of peace there were that the two parties might choose from. The prime minister named sixteen, and explained the advantages and disadvantages of each. "But out of all of these, which is the best peace?" the king asked.

Replied the vulture, "My lord, the very best is the Golden Peace, that which binds all parties with an oath of truthfulness and cherishes them with the bond of friendship." The king, much touched, agreed that this was the only peace worth having; and so the birds had it. King Golden-Tipped exchanged gifts and best wishes with Far-Seeing Vulture, who then returned home. Great-of-Strength the Stork recalled his forces and went back to his own land. And from that day on, all of the birds lived on in peace and friendship.<sup>[372]</sup>



# Chapter 5

## Scourge of the Secretive, Friend to the Famished: Vultures in Africa

Vulture! You eat anybody's egesta, but nobody eats yours.

-proverb of the Oji language of West Africa

Try as I might . . . I could never rid myself of this awful feeling of slowly and certainly creeping towards death. And the Lammergeiers made it worse.

-Leslie Brown, *Ethiopian Episode*

On February 6, 1838, the British missionary Reverend Francis Owen sat reading his Bible in the welcome shade of his wagon. The previous October, he had arrived in Zululand, the domain of one of southern Africa's most powerful tribes, with his wife and children, and taken up residence on a ridge overlooking uMgungundlovu, the homestead that served as seat of royal Zulu power. The Zulu king Dingane was much more interested in having his people learn to use the white man's guns and wagons than in letting them hear the Christian gospel; but he nevertheless gave permission for the entry of the missionaries into his kingdom.<sup>[1]</sup> The reputed savagery of the Zulu was rich fodder for Victorian penny dreadfuls, and many Westerners would have considered any missionary willing to attempt conversion of such people to be just as foolhardy as those hapless souls who attempted to bring the gospel to the cannibals of Fiji; but Reverend Owen was well aware of Dingane's capricious and often lethal temper. At uMgungundlovu, Dingane and his predecessor, Shaka, had ordered executions of their own people so frequently that there was a designated execution spot, the kwaNkatha, just outside the settlement's main entrance; as well as a special hill, kwaMatiwane, where the bodies of those executed were traditionally left for vultures and other scavengers. Many aspects of Dingane's rule seemed brutal to the European sensibilities of the day; but the king was and is generally well-regarded among the Zulu, and his hospitality certainly gave the missionaries few causes for complaint. Other white men, like the traders who continually encouraged Zulu women to move out of Zululand and into their settlement of Port Natal, were less welcome in Dingane's domain; but the king's dislike of the traders paled compared to the fury aroused in him by the Boers.

Dingane had good reason to be wary of the Boers, the Voortrekkers of Dutch ancestry who had recently appeared in his kingdom from the south. Not only did they have guns, and the will and experience to use them effectively, but they behaved differently from the British missionaries and traders. Firmly convinced of the superiority of the white race, they didn't want trading concessions or heathens to convert; they wanted land, and with their technological advantage over native Africans, they had the ability to take what they wanted. They were, in effect, a mobile society, one which had already defeated several neighboring tribes. Even proud Dingane didn't believe that the Zulu could defeat them in open battle. After a number of tense encounters with the Boers, which included chest-beating displays of military prowess by both sides, Dingane and three other Zulu leaders put their marks on an English-language document which ceded much Zulu territory to the Boers. Four days later, Dingane invited the Boers to a parley inside uMgungundlovu, where they would drink beer with the king and be entertained by singing and dancing - on the condition that they leave their guns

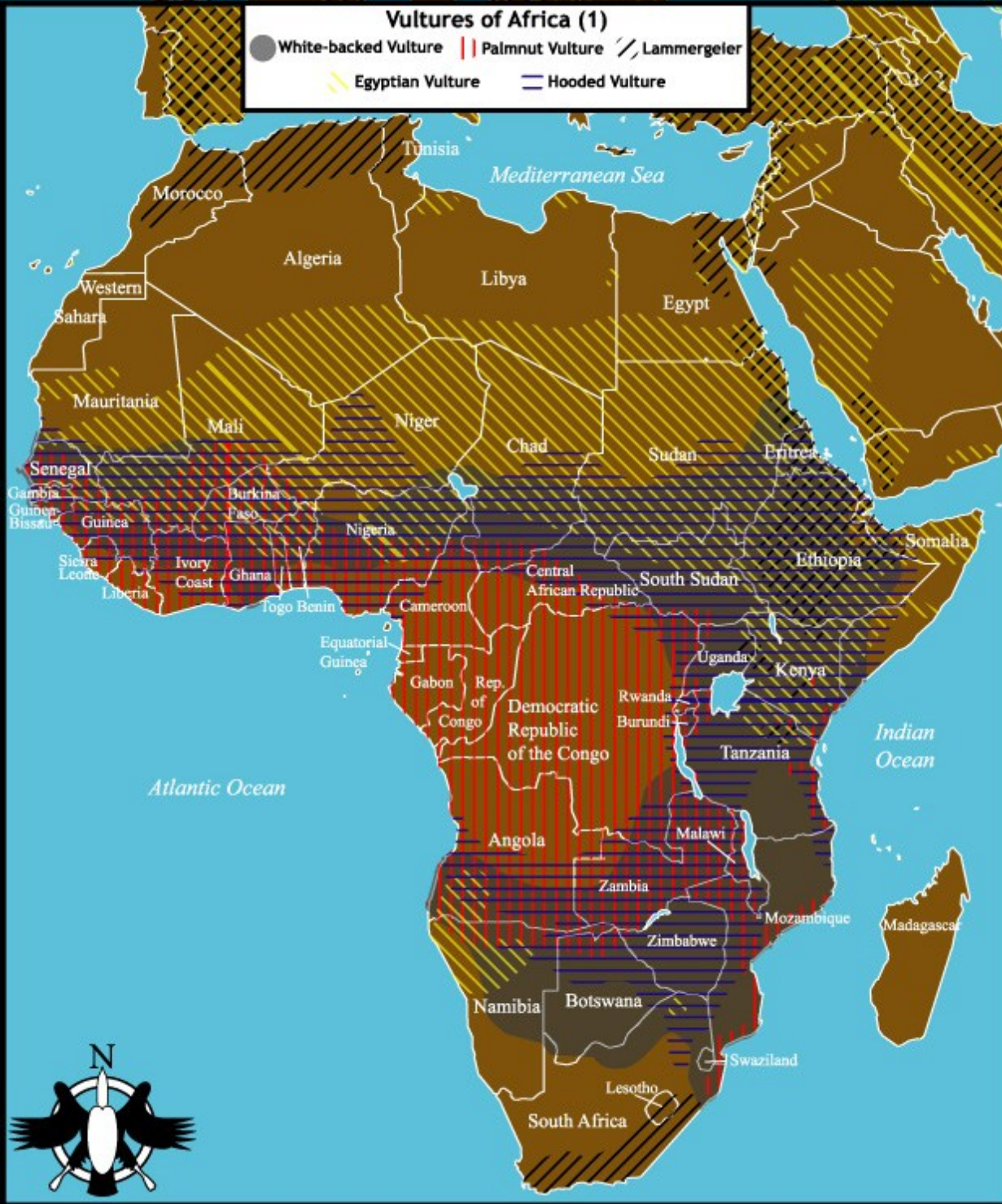
outside. Having no reason to suspect foul play from the Zulus, who had shown no overt signs of aggression since the treaty, the Boers did so.

As the Zulus and Boers partied together, Reverend Owen was quietly reading when a Zulu messenger ran up and informed him that Dingane intended to kill the Boers before they killed him. Horrified by the news, Owen pointed his spotting scope towards kwaMatiwane, the vultures' hill, and saw groups of Zulu dragging the Boers and their "colored" native attendants to the top of the hill. Some were already dead; others had been beaten unconscious, and were finished off with spears or clubs on kwaMatiwane. Owen could watch only a few moments of the slaughter before he collapsed to the ground, unconscious.

When Richard Hulley, Owen's translator, arrived at uMgungundlovu on February 9, he noticed two unusual sights: A large aggregation of vultures wheeling over kwaMatiwane, and a number of Boer saddles piled near the entrance of the settlement. No additional explanation was required to understand the implications. Although the British missionaries and traders were allowed to leave uMgungundlovu two days later, the Boers would remain at kwaMatiwane, forever.<sup>[2]</sup>

This gruesome story marks one of the earlier instances when newcomers to Africa understood what native Africans had known for many millennia: although they cannot speak, vultures can tell you much if you know how to listen. More so than anywhere else, the ability of vultures to see what humans can't, and to find what they couldn't, has been a vital component of the human-vulture relationship in Africa. And humans in much of Africa, especially West Africa, have repaid the favor by providing so much sustenance for the vultures that some of the great birds choose not to live anywhere that people are absent.

The usual modern interpretation of the human-vulture relationship in Africa, as with that in the Far East, is simply that the birds are beneficiaries of human suffering. Every disaster in recent African history, be it a famine in Ethiopia, a civil war in Somalia, an ethnic genocide in Rwanda, or an ebola virus outbreak in the Congo, invites commentators to develop newly macabre metaphors involving vultures (regardless of whether or not there are any vultures actually present) in order to better convey the mortal horror of the situation to their readers and listeners. But, as in the Far East, this is an interpretation of the region's vultures that was created and imposed by outsiders. The truth is that despite such sensationalism, the human-vulture relationship in Africa is rather low-key. Until European settlers arrived in force, vultures were generally respected in Africa, but not often worshipped as they were in many cultures elsewhere; and when they were subject to chiding or mockery, it was typically done with familiarity and without malice – a dramatic contrast with the wild-eyed and vitriolic vilification of the carrion birds commonly expressed in Europe or post-Columbian North America. This is only fitting, as the human-vulture relationship is at its oldest in Africa, and so is well understood by both sides. In the so-called "Dark Continent," the light of acquired knowledge burns at its brightest, and neither vulture nor human has many surprises left to spring upon the other.



Africa has, without question, the most spectacular vulture community to be found anywhere. After the destruction of the New World's vulture guilds at the end of the Pleistocene, this continent became the world's center of vulturine diversity, with an incredible eleven different species of vulture. The species count of Africa has since declined by one; the small populations of Monk Vultures in northwest Africa<sup>[3]</sup> and perhaps also in the Red Sea Mountains of Egypt and Sudan<sup>[4]</sup> have died out for unknown reasons during the past century. Africa

still contains ten different vulture species; six of which are endemic to the continent, found nowhere else in the world. As in other regions where the birds are exceptionally diverse, the different vulture species of Africa have adopted wildly varying approaches to dealing with humans, from total avoidance to intimate cohabitation. Yet all of these approaches seem to work, as all of the species that practice them (Monk Vulture excepted) have survived in reasonable numbers and territory to the present day. Two of these species, the Hooded Vulture and White-backed Vulture, are among the most numerous vultures in the Old World, with hundreds of thousands of individual birds plying the skies above village, veldt, and savanna.



Nowadays, the prevailing image of these birds' ecological roles is that perpetuated by the global media: Vultures as ghoulish parasites of Lions and other predators that exist solely to consume the leavings of other creatures. Africa's people have a familiarity with vultures that is both truer and more fantastic: when they look at the birds, they see sanitation workers, harbingers of food, and companions of sorcerers and gods – sometimes even sorcerers and gods themselves, only in vulture form. Vultures in Africa have been living with humans for millions of years, and they provide an unrivalled opportunity to study potentialities of the human-vulture relationship that have gone unfulfilled anywhere else. And, alone of all the regions of the present-day world, Africa allows us to understand how the human-vulture relationship functioned when both naked ape and bald bird shared their land with megafauna, the giant animals that dominated the world for so long. In Africa, no meat-eating animal that takes its sustenance from the plains can afford to be unaware of the significance of vultures' movements. All of them must know, by instinct or learning, what a towering column of circling vultures portends. All of them understand that trailing the birds can, sometimes, be immensely profitable. But all are also aware that those many pairs of piercing eyes



can see, from their lofty vantage, things that a hunter or scavenger would to keep hidden. At the very least, no experienced African hunter is unaware that it's very foolish to leave a carcass in plain sight during the day, unless it is vigilantly watched and guarded; otherwise the vultures will seek it out, find it, and devour it.

As mentioned [in Chapter 2](#), the human foraging technique of vulture-trailing was almost certainly first developed in Africa; specifically, on the plains of eastern and southern Africa. With the possible exception of the steppes of Asia, Africa is probably the only region left in the world where the technique of vulture-trailing is still practiced as it was in prehistoric times; and even among those few people that still trek after the shadows of carrion birds, the practice, like all other aspects of so-called “primitive” hunting-and-gathering lifestyles, is in decline. Still, “seeking vulture scent,” as it’s known among the San people of southern Africa,<sup>[5]</sup> remains important to those who depend on wild ecosystems to provide their meat, because it's so much more efficient and practical than merely searching for meat at random. Vulture-trailing is and probably always has been the province of plains-dwellers, who live in open savannas and deserts, with few trees. For hunting-gathering groups who live on the plains, trailing vultures and pirating the kills of mammalian predators have long been two viable options for obtaining meat, no more or less exalted than hunting large mammals or digging grubs out of the ground.

Until the 1960s, when they adopted agricultural ways of living, the Hadza people of Tanzania went out to either trail vultures or hunt living prey when they needed meat, depending on the opportunities available at the time. They were also accomplished pirates, experienced and confident in the often-dangerous skill of stealing kills from Lions and Spotted Hyenas.<sup>[6]</sup> In most years, the Hadza garnered about 80% of their meat from hunting and 20% from scavenging of all kinds.<sup>[7]</sup> As practiced by the Hadza, wander scavenging was an opportunistic, relatively leisurely, and rather free-spirited activity. Both men and women took part, walking unhurriedly around on the savanna while looking and listening for likely signs of carcasses. The most important of these were circling vultures, which could be seen from more than a kilometer (0.6 mi) away on a clear day, vultures perched in trees (also visible for some distance, since the birds like to perch in trees which are dead and bereft of any leaves), and the presence of large carnivores.<sup>[8]</sup> Although the studies cited here make no mention of it, it seems likely that the Hadza took some care to distinguish between different varieties of vultures when possible. Vultures low in the scavenging hierarchy, such as Hooded Vultures and juvenile White-backed Vultures, often congregate at carcasses that have already been stripped of meat by their more powerful competitors. Such skeletal remains were usually of little use to the Hadza,<sup>[9]</sup> and it was undoubtedly important that time and effort not be wasted tracking them down.

Other Africans certainly did distinguish between different types of vultures. The Khoi San of southern Africa held the Egyptian Vulture or *Ouri-gorab* (“White Crow”) in high esteem, as it would frequently locate Lion kills for them, which they could then steal from the hapless cats. The earliest European explorers of the continent thought this relationship noteworthy enough to mention in their writings.<sup>[10]</sup> Doubtless this association was many centuries old; one wonders if the relationship cut both ways, if Egyptian Vultures sometimes deliberately looked for Khoi hunters after they had found a Lion kill. After all, the hunters could drive the bullying cats away, and might favor the vultures with a few choice morsels without forcing the birds to dodge claws and teeth for them. Some other hunter-gatherers, such as the Kade San of Botswana, never engaged in wander scavenging as an end in itself. For them, vulture-trailing was a solely opportunistic endeavor that was undertaken by hunters who were already out looking for prey. The hunters were able to steal the kills of Lions, Leopards, Cheetahs, or Wild Dogs by running to the spot where large aggregations of circling vultures have

gathered.<sup>[11]</sup> As a proverb of the Yoruba people of West Africa put it, "The vulture scents the carcass, however high in the air he may be."<sup>[12]</sup>

The adage that vultures can be useful when pursuing food has long since passed into African folklore. In West Africa, some tell that, a long time ago, a small boy with the unlikely name of Yonkon-pass-me-dollar-loss lived in a town beset by famine. There were no edible crops, the livestock had all died, and there was nothing to trade for food. No one had anything to eat, and so the boy trekked into the bush to search for food.

He walked for many miles without seeing anything edible; but eventually he saw, off in the distance, a large cave with a flock of vultures circling above it. Suspecting that the vultures had found a carcass, the boy approached quietly, and hid himself near the cave so that he might see what was going on. But the entrance of the cave was blocked by a heavy stone; there was apparently no way to enter it. From the circling flock, the vultures swooped down to the stone one by one, said, "I haven't eaten liver yet," and then returned to the sky. When the last vulture had spoken those words, the huge stone miraculously moved aside; and the vultures all streamed into the darkness of the cave.

Yonkon saw all of this, and was greatly excited; but he managed to restrain himself until all of the vultures reappeared from the cave and vanished back into the sky. Wanting to see what was inside the cave, he approached the entrance and repeated the words, "I haven't eaten liver yet." The stone moved aside for him, just as it had for the vultures. The boy entered the cave, and saw, lying on the stone floor, a great pile of delicious liver. Famished, he ate some of it immediately, and put as much as he could carry in his sack. Then he rushed back to his town, to tell his family what he had discovered.

When Yonkon's father heard of this magical cave with its limitless supply of liver, he decided that not only would they take liver from it, but they would steal the cave from the vultures. The very next day, he went to the cave, and began to boil some water as the vultures were inside eating their meals. When the vultures were satiated, they all fell asleep; and Yonkon's father caught them, and dipped each one of their heads into the boiling water, stripping the feathers away. None of the vultures awoke during this operation; they were unaware of what had happened. When they finally did awake, they saw what had happened to their heads; and, terrified, they flew away from the cursed cave, vowing never to return again. Yonkon's father claimed the magical cave and its limitless supply of meat for himself and his people; and since then, vultures have had bald heads.<sup>[13]</sup>

Vulture-trailing could also be useful to hunter-gatherers who were intent on killing their own prey; there is no better way to locate a prey animal that is mortally wounded, but has escaped out of sight, than by watching for vultures. The birds were so superb at locating lost game that their aid might actively be sought out by those who required it. The San of southwestern Africa tell of a man who, unlike most San, preferred to hunt alone, and who one day shot a Gemsbok antelope with a poisoned arrow. The Gemsbok fled into the bush, and the man soon lost its trail. He searched all day without finding it, and went home that night in defeat. The next morning, he took a handful of vulture feathers, threw them into the air, and said, "There . . . the vultures are diving from the sky." The feathers blew away in the breeze, and the man walked in the direction of the feather which had fallen farthest away. After a time he saw vultures perched in trees, above a spot where he had not searched the day before. Directly below the vultures, he found his freshly dead Gemsbok.<sup>[14]</sup>

To some, the close bond between vultures and hunters was best attributed to divine intervention. The Shilluk people of South Sudan say that Buffalo was God's first and favorite creation, and that God intended to provide Buffalo with a spear to allow him to kill at will. But Man, God's unfavorite child, learned of this, and managed to trick God into giving him the spear instead. When



God and Buffalo learned of Man's deception, they were enraged; God gave Buffalo a pair of very sharp horns, and ordered him to gore Man whenever he was seen. Man, meanwhile, had acquired a spear with no handle, which could not be thrown at Buffalo effectively. Man's friend, Vulture, came to the rescue. Vulture fashioned a handle and attached it to the spear, then told Man, "I ask no reward for this, but when you hunt I will watch, and when you kill something I will come to feed on the blood that is shed on the ground." Man and Buffalo were at each other's throats ever after; sometimes Man was killed by Buffalo's horns, and sometimes Buffalo was killed by Man's spear. When Man was killed he was buried by his friends, but when Buffalo was killed, Vulture was sure to be there for his reward.<sup>[15]</sup>

There was an unfortunate flip side to this vulturine efficiency: the birds might converge on a prey animal, and devour it to a greater or lesser (usually greater) extent before the anxious hunter managed to reach it. This is a major problem for the San hunters, because they often use slow-acting poisons to kill their prey. The wounded animals often travel for many miles before collapsing;<sup>[16]</sup> by the time a hunter reaches it, his prey might already be covered by a seething and ravenous mass of vultures. Very early in their existence as hunters, the San learned that any kills they made had to be either guarded or hidden if they were expected to remain intact for long. One way of doing this was simply to cover the kill with bushes; but this had to be done before any vultures had spotted it, or the birds would simply wait for the hunter to leave to report his success to his cohorts, then drag the carcass out from the bushes and devour it. The /Xam-ka !au San were cautioned by their folktales not to leave their kills in thornbushes, where vultures would find and devour them. Instead, it was advisable for hunters to leave their springbok in the vacated burrows of porcupines, which could be walled over with stones to safely store kills until the hunters returned.<sup>[17]</sup> The /Xam-ka !au didn't think that they were the only hunters who had to be wary of vultures; in one of their tales, a Lion who has killed a man worries about the corpse being eaten by vultures, and quickly hastens back to its kill and drags it under a large tree to shelter it from scavengers' eyes.<sup>[18]</sup>

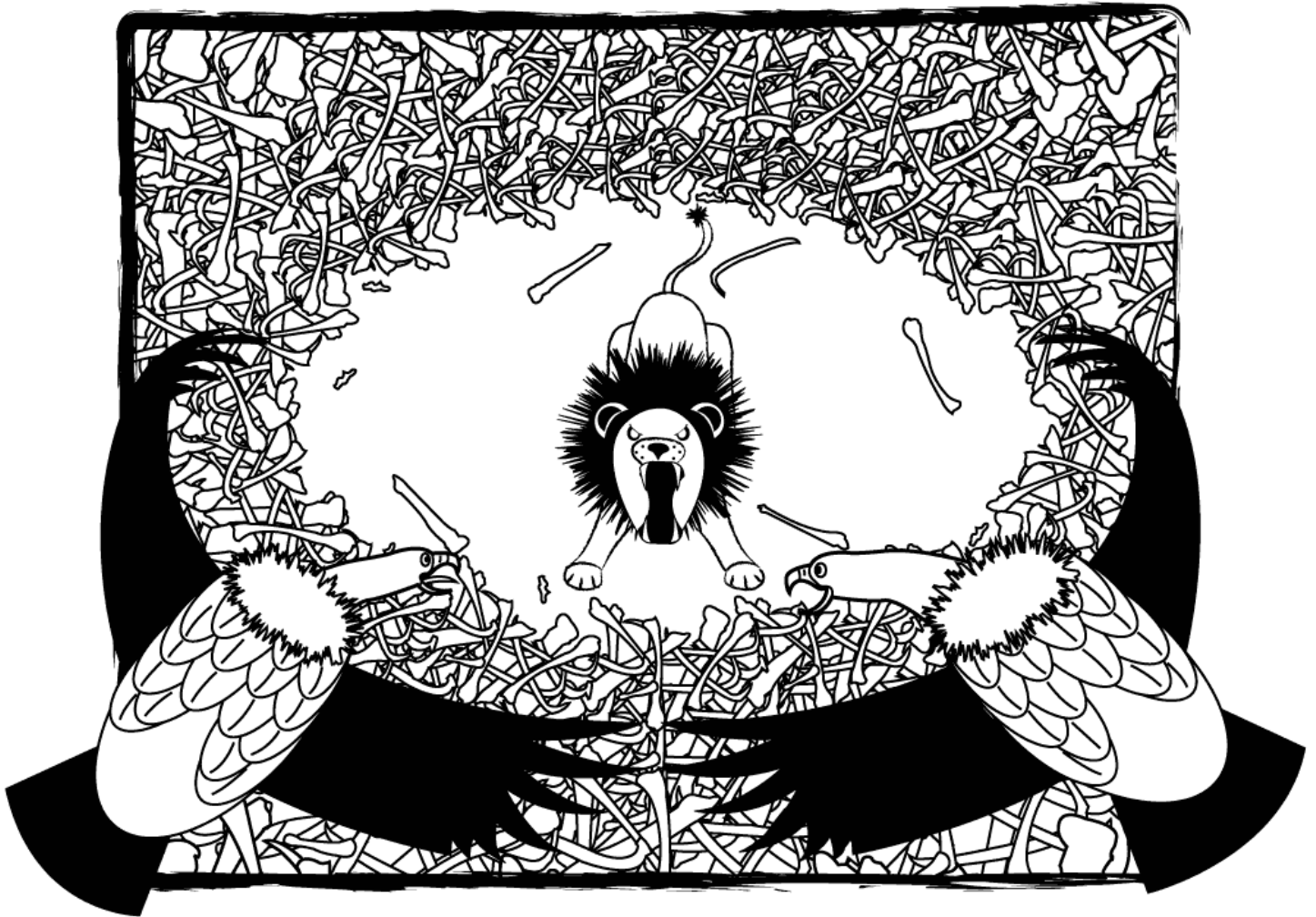
The competition for food between vultures and Lions seems to be as old as time; but according to a Khoi San tale, the Lion originally was the undisputed master of vultures and all other creatures. At the dawn of time, the Lion was able to fly because of his powerful magic; and thus he ruled the creatures of the sky as well as those of the land. All creatures lived in fear of his monstrous appetite, as a monument to which he had built a huge graveyard beside his lair, piled high with the countless bones of his kills. Lion was very proud of this monument to slaughter; but, although no one save he knew of it, among the bones of the graveyard was hidden the bundle of magical objects that allowed the wingless cat to fly. Lion feared that this might one day be discovered and taken from him, banishing him from the skies forever; and so he caught and enslaved two Vultures to guard over the monument and with it his magic. The Vultures couldn't fly in those days; they were firmly rooted to the ground, and so couldn't escape Lion no matter how hard they might try.

One day, Lion had flown off as usual on a hunt, leaving the Vultures to stand sentinel over his vast ossuary. There was, as usual, nothing much for them to do, as all creatures feared Lion far too greatly to think of approaching his monument. But then, the notorious trickster Bullfrog leapt into the monument from out of nowhere; and despite the fevered protests of the Vultures, began to smash and scatter the bones. The vultures were terrified, and pleaded with him to stop; but Bullfrog merely asked them, "Why should all of us live in fear of one solitary beast?" He shattered more bones, and then croaked, "If your master Lion is so almighty, tell him to come to his drinking pool and kill me there. I'll be waiting." Then he hopped off.

The Vultures could only tremble with fear as they surveyed what was left of Lion's prized monument. They only knew that all of their deepest, darkest fears of his wrath would come true when he returned and saw what had happened; but then, just when all hope for survival seemed lost, they found among the fragments of shattered bones the bundle of magical objects that bestowed the power of flight upon Lion. Hurriedly, the Vultures opened it and gobbled down the objects. Now they could fly, to their intense relief; and they immediately took to the skies, soaring higher and higher until they were sure Lion could never reach them.

All the while, Lion had been out on his hunt, laying in ambush for buffalo. When a herd of the land-bound creatures wandered near, Lion leapt up into the sky, confident that he would be able to swoop down onto his prey as so many times before; but instead, he crashed to the ground in a cloud of dust, and the buffalo fled. He immediately sensed that something was wrong with his magic; and he rushed back to his lair, his anger at his enslaved guardians increasing with every footfall.

When he reached his lair, Lion saw that all that was left of his proud monument were shattered, broken bits of bone scattered as far as he could see; and his bundle of magical objects, the only thing that had allowed him to fly, was nowhere to be seen. However, he did see the shadows of two large birds crisscrossing the wreckage; and looking up, he spotted the two Vultures, his erstwhile servants, circling high overhead. "WHAT HAPPENED?!" he roared at them.



"Bullfrog came here and shattered your monument," one of the Vultures called down. "He's waiting for you at your drinking pool." "And we can fly now!" added the other, swooping and diving to accentuate the point.

"Get down here, you stupid birds!" Lion roared. But the Vultures were not foolish enough to obey their former master; instead, they soared higher and higher, flying away over the green veldt. Lion, earthbound, could only watch with impotent fury (and just a touch of envy). Still, Lion thought, at least I can have my revenge upon Bullfrog. He ran to his drinking pool, and saw Bullfrog sitting there, at the edge. Lion crept closer, his fangs bared; but then Bullfrog saw Lion's fearsome reflection in the surface of the water, and leapt away just as Lion lunged. Lion again charged the frog, but he again leapt effortlessly beyond Lion's reach; and so it went, for a long time, until Lion was so exhausted that all of his anger drained away, and he wanted only to return to his lair and rest.

As Lion slowly plodded away, Bullfrog tauntingly called after him, "Ho! king of the beasts! Your magic is gone forever; now you'll have to hunt your prey on the ground, like every other earthbound creature!" And so it was. Lion catches his prey on the ground, while Vultures can soar wherever they please in the sky. Yet, like other animals, Vultures are still afraid of Lion, and only approach a carcass if the old tyrant is nowhere to be seen.<sup>[19]</sup>

Fortunately for all concerned, Lions can't be everywhere at once; in fact, studies of the East African savanna ecosystem have made it clear that the vultures there are responsible for the consumption of more meat than are all of the mammalian carnivores, from Lions to jackals, *combined*.<sup>[20]</sup> Considering the vast amounts of carrion that the savanna vultures dispose of every day, it's only natural that some Africans would use them to get rid of their own bodies as well. The ritual of exposure was and is practiced in Africa, although it apparently has never been as popular as it once was in Asia. The Vulture Cult which originated in the prehistoric Near East and influenced beliefs throughout much of Eurasia seems have had less influence in sub-Saharan Africa, particularly where funeral practices are concerned. Traditional exposure rituals in which there is a clear intent to deliberately attract vultures to a body are an unknown practice south of the Sahara; African exposure rituals tend to be more informal and utilitarian, often consisting of little more than carrying a body into the bush and leaving it there for whatever scavengers find it first.

The 19th-century Zulu kings Dingane and Shaka were rather more enthusiastic in using vultures to get rid of slain enemies. They disposed of the bodies of their many executed victims by throwing them to vultures, which were colloquially known as *izinyoni zikaShaka*, "Shaka's birds." When the Zulu chiefs killed more people than usual, the catchphrase of the day was *ophalane balambile*, "the vultures are hungry." Among the Qwabe, a dissident tribe ruled over by Shaka whom often suffered from his temper, it was a popularly said that when the capricious king saw vultures flying overhead, he would cry out, "Wo! The birds of the king are hungry!" Shaka would then order arbitrary executions of a few random persons, and put the bodies on a hill to be devoured by the vultures. Then, Qwabe would say, "And wu! The vultures were all on the hill!"<sup>[21]</sup> Shaka's official praise-singer and personal attendant, Mxhamama, made a habit of praising his liege (and worrying his liege's subjects) at assemblies by mentioning that the *izinyoni zikaShaka* had also assembled, and therefore must be provided with fresh corpses. But poetic justice ultimately prevailed; after Shaka's assassination by supporters of Dingane, his successor, Mxhamama too became another vultures' meal.<sup>[22]</sup> Shaka himself was spared this fate; though some of Dingane's advisers suggested that his body be fed to scavengers, in the end it was given a proper kingly burial.<sup>[23]</sup> Dingane initially appeared to be less inclined to killing than Shaka, but apparently he was listening very closely when one of his advisors informed him that, "The killing of people is a proper practice, for if no killing is done there will be no fear." Before long, Dingane was repeating Shaka's behavior, with frequent declarations that the presence of vultures at assemblies dictated that the birds must be cherished with fresh human flesh.<sup>[24]</sup>



A European translator who worked in Zululand during the reign of Dingane recorded that:

So often were people put to death that the vultures were accustomed to sit round the Great Place, outside the enclosure and also within, without any fear whatever; and, so soon as a man or woman was pinioned ready to be carried away, the vultures would run and fly on before, in order to be ready for the food which the king prepared so plentifully should be left for them.

The “Great Place” was uMgungundlovu, Dingane’s seat of power, a place of dread for many of the king’s subjects who traveled there to pay obeisance to him. There was only one main entrance to the settlement which, surely not by coincidence, lay only a bone’s throw away from the kwaNkatha, the usual execution grounds. Only a few hundred yards to the northeast was kwaMatiwane, the hill where the vultures gathered,<sup>[25]</sup> named after a Xhosa chief who had been put to death there. It sometimes also served as an execution site, but more often bodies were simply dragged there from the kwaNkatha. Upon encountering the hill, a traveler named Charles Brownlee “found it strewn with skulls and skeletons, many quite recently picked by vultures and hyaenas. So accustomed had the vultures become to be fed upon this hill that they sat upon the euphorbia trees surrounding the capital patiently awaiting the next victim.”<sup>[26]</sup> In diplomatic terms, the Zulu kings’ practices were not dissimilar to the medieval European ruler Vlad the Impaler’s habit of erecting “forests” of impaled bodies in the paths of his enemies.

The Zulus may not have been the only Africans who used vultures this way. Several 19<sup>th</sup>-century accounts by Europeans indicate that vultures were used to dispose of executed bodies elsewhere in Africa, although most of these reports are quite obviously biased against the “barbarous” Africans and their veracity is somewhat dubious. In his 1874 book *The Natural History of Man*, J. G. Wood claimed that the king of Uganda, in East Africa, was partial to “was the gradual dismemberment of the criminal for the sake of feeding his pet vultures; and although on some occasions he orders them to be killed before they are dismembered, he sometimes omits that precaution, and the wretched beings are slowly cut to pieces with grass blades, as it is against etiquette to use knives for this purpose.”<sup>[27]</sup> German travelers in West Africa’s Ashanti Empire in the 1870s noted that the local vultures were regarded as the sacred property of the royal family, as a result of which they freely pilfered meat and fish in the markets of Kumasi without fear of retaliation. Woe be to anyone who caused harm to one of the royal vultures, even inadvertently:

A poor woman on her way to market with a basket of provisions on her head, was visited by one of these voracious birds, which fastening its claws tightly in the straw work, could not extricate itself. This was a strong temptation to the people around to possess themselves of its feathers, valuable for many purposes, and several ran forward, seized the larger ones, and disappeared in a moment with their prize. When the bird had freed itself, it was unable to fly, and a general lamentation ensued. The poor woman was carried off and put in irons, and would we knew be sacrificed.<sup>[28]</sup>

Even so, most Africans who practiced exposure thought of it as an ordinary funeral practice, not as a uniquely grotesque method of terrorizing enemies and potential rebels. For example, when a man or woman of the Maasai tribe dies, their body is laid to rest in the shade of a tree some distance from their village, before nightfall. Scavengers are expected to devour the body during the coming night; if the corpse remains intact the following morning, it is a bad omen, which becomes more serious the longer the body remains untouched.<sup>[29]</sup> This is one of the few exposure rituals anywhere in the world in which terrestrial scavengers are favored over vultures, because it takes place at night, encouraging hyenas rather than vultures to devour the dead.

Hyenas and vultures are frequent competitors for all kinds of carrion, and Africans who commonly witnessed these two very different scavengers reacting to each other, and leading each other to carrion, naturally believed that they could communicate. According to the Akan-Ashanti of Ghana in West Africa, when Kokosakyi, the vulture, speaks in allegories to Bonekyerefo, the hyena, the mammal understands the bird. When Bonekyerefo learned that his old mother had died, he went all over the land asking other animals to attend the funeral with him. All agreed, and the whole motley assemblage attended the funeral together. After the funeral, it was time for all of the attendees to purify themselves by bathing - starting with Bonekyerefo. The other animals mentioned this to him, but he responded that he would not purify himself until he had fasted for forty days in honor of his mother. The others had no choice but to go along with the wishes of the bereaved, although it meant that they, too, must fast for forty days.



Before many days had passed, the animals were starving, their bellies torn with hunger and their muscles weakening from malnutrition - all except Bonekyerefo. He remained strong, and showed no signs of hunger. No one could understand how he managed this; except for Kokosakyi the vulture. Knowing Bonekyerefo well, he suspected that the wily hyena was sneaking off at night to feast on his mother's corpse. When evening fell, Kokosakyi flew to a tall tree in the cemetery, and perched there. He soon saw Bonekyerefo loping along; without noticing Kokosakyi, the hyena dug into his mother's grave-mound, pulled the corpse out, and began chewing on it. Kokosakyi watched this odd tableau

with amusement for a few moments, then swooped down beside the grave and said, "Bonekyerefo, congratulations for managing to keep yourself fit and strong. We poor starving creatures would give you thanks, but it would only be a scoffing kind of thanks." Shocked by the unexpected visitor, Bonekyerefo implored Kokosakyi not to tell anyone what he had seen; in return, Bonekyerefo said, "Whatever you say to me, I will understand your meaning and act immediately." Kokosakyi agreed, and flew off.

When morning came, Kokosakyi told the other starving mourners that they would eat that very day, and they would then return to their villages. All of the animals then went to Bonekyerefo's house, and Kokosakyi told him the same thing. What did Bonekyerefo have to say to this? Understanding what the vulture was hinting at, Bonekyerefo immediately agreed; he went out and caught three sheep, giving some of the meat to his friends and keeping some for himself. They all ate, ending the fast at long last. Then Bonekyerefo bade farewell to his friends, and they returned home. This is why the Ashanti have a saying, "When the Vulture speaks in allegories to the Hyena, he understands its hidden meaning."<sup>[30]</sup>

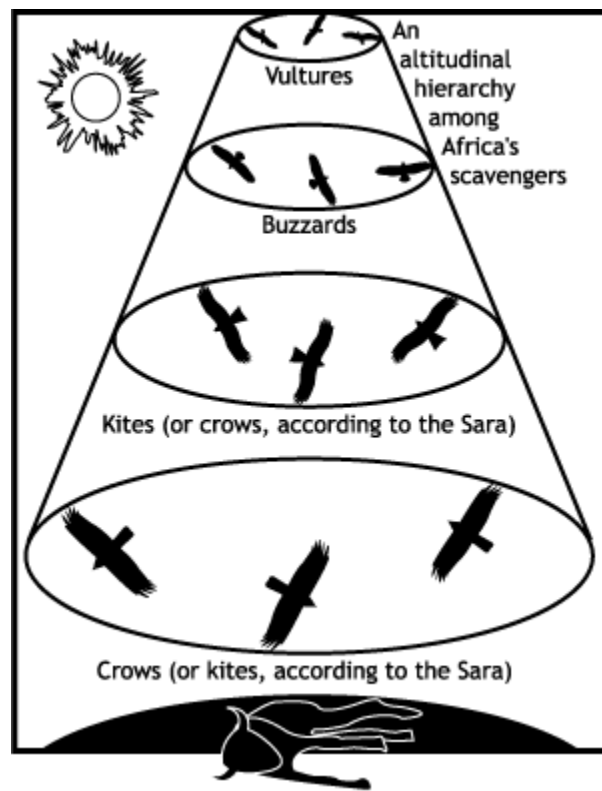
Aside from the ability of vultures to find hidden carcasses, the sheer speed with which they could travel to them, far faster than any land animal, greatly impressed many Africans. The effortless flight of the vultures inspired the Wajaggas of eastern Africa to tie vulture wing-bones around their legs when they required great endurance; absorbing the power of the bone is believed to enable its wearer to run many miles without growing weary.<sup>[31]</sup> Similarly, vulture parts used in specific rituals are still believed by some Africans to make racehorses run swiftly.<sup>[32]</sup> The bird's quickness is so stereotypical that the Akamba Kenyan version of a tortoise-and-hare story involves not those two animals, but a vulture and a creature as slow as a tortoise: a chameleon. A long time ago, the Akamba say, Vulture met with Chameleon. They started to chase one another, deciding to race for ten miles to see who would finish first. The Vulture told the Chameleon that he could start first, since he was certain that he would win easily. The Chameleon agreed, and disappeared into the trees.

Vulture hopped to the ground and flexed his wings, making ready to take off; but he didn't notice that Chameleon grabbed tightly to his tail as he did so. Vulture took to the sky; he was so large, and Chameleon so small, that he didn't even notice the extra weight of the little lizard. He flew the ten miles quickly and easily, certain that Chameleon was left far behind, and landed upon the rock where the race would end. But, no sooner had he touched down, than he heard a small voice call, "Watch out. You are sitting on me." Chameleon was already there, and so he won the prize.<sup>[33]</sup>

In a similar vein, the people of Barotse in western Zambia tell that long ago, Vulture and Tortoise were best friends. Vulture went out of his way to visit Tortoise at home every day; but Tortoise, slow and cumbersome as he was, was never able to go visit Vulture. Although Vulture never said anything about this lack of reciprocity, it upset Tortoise that he was never able to repay his friend's visits; so much so that he once told his wife, "I'm afraid we'll lose Vulture's friendship if we don't visit him at home just once; he must think terribly of us that he must always come here to see us, yet we never go to see him!" "But Vulture knows we can't fly; surely he doesn't think ill of us for that," she said. "Still, I feel terrible about it," Tortoise said. And he turned the problem over in his head for awhile, trying to think of a way to surprise Vulture with a visit. Finally, he came up with an idea. He asked his wife to wrap him up in a bundle of mats that she had woven from reeds; when Vulture arrived on his next visit, she could give him the bundle as a gift; and Vulture would carry the bundle, with Tortoise inside, to his house.

Tortoise's wife was a bit dubious about the plan, but she nevertheless did as he asked. She wrapped him up in a great bundle and left it out in the yard. Vulture arrived shortly afterwards, and was surprised to see that Tortoise was gone. His wife told Vulture that her husband had to leave on an errand, and sent his apologies for missing the visit. She also informed Vulture that Tortoise wanted him to take the bundle of mats laying in their yard, as a token of their great friendship. Vulture accepted this generous gift with many thanks and, taking the bundle in his talons, flew off towards his house. Ensnared in the bundle, Tortoise could sense with mounting anticipation that he was about to see Vulture's home. Finally, he could wait no longer, and he called out, "Friend Vulture, it's me, Tortoise! Remember how promised that I would one day visit you in return?"

Vulture was so startled that his talons slipped, and the bundle, with Tortoise inside, fell a long way to the ground.





Tortoise's shell was shattered on impact, killing him; and the long friendship between tortoises and vultures was broken like the shell. But still, to this day, cracks can be seen in the shells of the descendants of Tortoise.<sup>[34]</sup>

Rather more complex beliefs were constructed around the movements of vultures in the third dimension. The Sara-speaking people of Chad picture the animals known to them in concentric circles, with humans at middle, and each circle outward representing a creature that is less familiar than the one before it. A story told by the Sara, in which a traveler goes to the heavenly domain of Loa, the supreme being, utilizes this structure to illustrate different levels in the sky. The traveler must pass through the domains of different kinds of birds: kites, buzzards, crows, and finally vultures, the least familiar and highest-flying of all.<sup>[35]</sup> Travelers to Africa have noticed a similar sort of altitudinal hierarchy among the flying scavengers. While in Africa in the 1780s, the Frenchman François Le Vaillant one day killed a gazelle, left its carcass on the ground, and hid in a clump of nearby bushes. The first scavengers to arrive over the carcass were the crows; a few minutes afterwards came the kites and buzzards. Far above these birds,

Le Vaillant saw at an immense height a flock of Vultures . . . gradually descending in concentric circles, and seeming to come out of the vault of heaven. They flew down upon the gazelle, and soon there were hundreds of them; a shot put them to flight, and they disappeared as they came. Thus the smaller birds of prey first gave warning to raptures of larger size; these in their turn warned the brigands of a superior order, and all took a share in the benefit of their communications, which were more rapid than our telegraphic dispatches. The prey having been torn in pieces by the Vultures, the kites were able to seize some pieces, and the small fragments left upon the carcase of the victim were precious dainties for the crows, who had given the warning.<sup>[36]</sup>

Confirmation of old beliefs - in this case, that the vultures are the highest-flying birds of all - can sometimes be found in the most unlikely forms. On November 29, 1973, the crew and passengers of a commercial jetliner flying over Abidjan in the West African nation of Ivory Coast were startled when a large bird collided with their plane; all the more so because they happened to be cruising at an altitude of 37,000 feet (11,285 m) at the time. The collision damaged one of the jetliner's engines badly enough that it had to be shut down, but there was no other damage and the flight crew nursed the plane to a safe emergency landing at Abidjan Airport. There was, of course, little left of the bird (the closing speed of bird and jetliner combined must have been close to Mach 1), but some partial and even a few complete feathers were scraped off the plane and sent to the National Museum of Natural History in the US, where they were compared with feathers in the museum's archives and identified as belonging to a Rüppell's Griffon.<sup>[37]</sup> The incident still marks the highest recorded altitude for any bird.<sup>[38]</sup>

As birds that spend much time both in the highest sky and on the ground, it's only logical that vultures would serve as messengers between the heavenly abodes and the creatures of the earth. In one West African folktale, a vulture performs that very service, but soon learns that such altruism is not all that it's cracked up to be. In a far distant time, there was a great quarrel between Heaven and Earth caused by a small dead rat, which Heaven insisted was his, but which Earth and all of the people and animals refused to give to him. Because of this quarrel, Heaven moved his house high into the sky, far away from the rat-hoggers. Earth and his companions didn't miss Heaven's presence at first; but as time wore on, the lack of Heaven's rain brought drought to the land. Rivers and lakes dried up, plants shriveled and died, and the people and animals began to starve. It was decided that Heaven should be given his rightful rat; but, with his house so high in the sky, only a bird could take it to him.

Hawk attempted the task first. With the rat in his talons, he flew very high indeed, until he was almost invisible from the ground; but then his strength gave out, and he fell from the sky. He could not carry the rat to Heaven. Hornbill tried next; but, with the rat in his bill, he could fly no higher than Hawk had. All but one of the birds gamely tried to take the rat to Heaven, and all failed. Earth was becoming very depressed. At that point, Vulture stepped out of the crowd, and said that he would try. Everyone laughed at him; they knew that Vulture was neither clever nor bright, so how could he succeed where everyone else had failed? Still, Vulture insisted that he would be the one to take the rat to Heaven. The others laughed again; but Earth said that they should at least give him a chance. And so, Vulture picked up the rat and winged into the sky. After only a few minutes, Vulture was already out of sight, having flown higher than any other bird had managed to. Those on the ground wondered whether he had reached heaven, or whether his strength would falter and he would fall out of the sky, as the other birds had. A few more minutes passed, and thunder was heard ringing across the land. Hearing its sound, everyone agreed that Vulture must have reached Heaven.

Indeed he had. When he met Heaven's gatekeeper, he said that he was Vulture, the emissary of Earth, and that he was bringing the disputed rat to Heaven. Vulture was admitted into Heaven's abode; when he saw Heaven, he prostrated himself, and told Heaven that Earth admitted his wrongdoing in the rat affair. Heaven laughed mightily upon hearing this, and assured Vulture that the rains would come again; the rivers and lakes would fill, the plants would grow, and everyone would be happy. He then showed Vulture into his backyard, where some small gourds were growing. Heaven asked Vulture to pick three of them; one should be broken as Vulture was leaving the gates of Heaven, the second when Vulture was midway between Heaven and Earth, and one the third when Vulture had reached Earth. Carrying the gourds, Vulture thanked Heaven and left to return home. At Heaven's gates, he broke one of the gourds, and immediately dark clouds gathered in the sky and thunder pealed out. Upon hearing it, everyone on the ground watching for Vulture's return was quite sure that he had reached Heaven.

Halfway down to the ground, Vulture broke another gourd, and here and there small rain showers started to fall. Unaccustomed to rain after so long without it, everyone on the ground began panicking, rushing around to repair broken roofs and gathering up possessions that they didn't want drenched. Then they shut themselves up in their houses, which is where they were when Vulture returned from his journey. Once on the ground, Vulture broke the last gourd, and rain fell in a vast, hammering deluge; but he couldn't find any shelter. He ran from house and house, sticking his head in each one to request shelter, but the only responses were stones, pebbles, and sticks thrown at his head. He tried every house, every bird's nest, and every animal's den and burrow, but no one would give the bringer of rains any shelter, and everyone knocked him on the head with whatever came to hand, bill, or paw. His head was hit with so many things that all of the feathers were torn from it. With no place to rest, and no place to shelter from the rain, Vulture stretched his soggy wings and flopped into the top of a tall tree. From there he pronounced a curse on Earth and all who had denied him shelter. "From now on," he proclaimed, "all of you will pay very dearly for any good turn that anybody does for you."<sup>[39]</sup>

The Dahomey people, also of West Africa, believe in several different pantheons of deities, each of which waxes and wanes in popularity over time. Until the 20th century, one of the most popular was the Earth pantheon, the Sagbatá; although it has since declined somewhat, as the Earth deities were thought to administer punishments with disease, and European medical technology (especially inoculations) ensured that many of those diseases were no longer very fearful.<sup>[40]</sup> A Dahomey priest provided the anthropologist Melville Herskovits with a list of the Sagbatá. Among them was

Suvínengè, “vulture-child-nengè,” the messenger of the gods. Despite his name, the priest claimed that Suvínengè was not believed to be an actual vulture; rather, a being with the head of a man, although bald, and the dark gray body of a vulture. Suvínengè’s primary duty was to carry messages from the Earth deities to the gods of another pantheon, the Sky deities, and vice versa. Of more practical importance to the average believer in the Earth pantheon was his importance in determining whether sacrifices offered to the gods were, in fact, acceptable to them. The Dahomey commonly sacrificed domestic animals including Chickens, Goats, and Sheep; the choice of animal depending on which god(s) the sacrifice was being offered to.<sup>[41]</sup> If a sacrifice was offered, and it disappeared overnight, it was thought that Suvínengè had swooped down and taken it away, in order to bring to the god for whom it was intended.<sup>[42]</sup> A West African proverb holds that, “If it happens that Vulture is hungry, a catastrophe will occur in the town.” Vultures benefit from disasters twofold; not only can they expect to feast on the carcasses of animals killed by disasters, but they can also partake of the carcasses of animals sacrificed in attempts to end the disaster.<sup>[43]</sup> On the other hand, the Efik people of Nigeria dub the vulture Atai Abasi, the principal wife of Etenyin Abasi, the father god, who dwells in the sky. This accords the vulture a status similar to that of the eagle in Roman mythology.<sup>[44]</sup> They also have a saying revolving around the periodic sacrifices made to the god and his bird: “If the Creator doesn't like a man, the sacred vulture will not descend when he throws out the flesh.” The willingness of a vulture to accept such a sacrifice is seen as a token of the Etenyin Abasi's goodwill towards a person;<sup>[45]</sup> if a vulture refuses a sacrifice, then the person who made it knows that they are out of favor with the higher powers, and would be wise to do something about it.

The Nuer people of East Africa believe in an all-encompassing supernatural force, Spirit, which displays its intentions through signs. Vultures themselves are not thought of as Spirit; but if a vulture perches in a conspicuous location, such as the roof of a hut, the Nuer say that “it is Spirit,” meaning that it’s a spiritual signal (usually of an impending disaster).<sup>[46]</sup> If a vulture does perch on a hut or other dwelling-place, a goat is sacrificed and offered to the bird, which is asked why it’s decided to settle on someone’s home. The vulture is expected to accept the offering and depart, removing both itself and the malign forces it’s thought to represent from the vicinity. Even more unusual behavior by vultures can be very alarming. In his book *Nuer Religion*, E. E. Evans-Pritchard recounted that a Nuer man told him some years ago, he went with a party of men to find a cow that had died out in the bush. When the carcass was found, it had already been discovered by a mob of Rüppell’s Griffons. The Griffons flushed from the carcass as soon as the men appeared; but one of them dropped from the sky and perched – directly on the man’s head. This, needless to say, showed a very powerful presence of Spirit; and as soon as the party returned, a goat was quickly sacrificed and dragged out into the bush for the vultures.<sup>[47]</sup>

The practice of trailing vultures to find dead wildlife, rather than dead livestock, is becoming less and less tenable as more of the continent is swallowed by development and more of Africa’s wildlife is killed off or displaced. It's very likely that the technique will vanish entirely from active practice within the next few decades. But the related and widespread belief in the ability of vultures to find valuables, and to lead people to them, will probably prove more durable. For most of human history, meat was scarce, difficult and sometimes dangerous to obtain, and highly valuable; therefore it is arguably the prototypical item of value in the minds of humans. Thus, while hunting-gathering cultures still prize vultures for their ability to lead them to meat, cultures in which money is the ultimate measure of value may instead believe that vultures can lead them to this more nebulous and less edible resource. A desire for vulturine aid can be manifest itself in many ways, some benign, some less so. The Bamana people of Mali attach vulture feathers to their animal masks, in order to



demonstrate that whoever wears the mask possesses the same powers of mysterious knowledge and “divination” that the carrion birds do.<sup>[48]</sup>

Other manifestations of such beliefs may be much more harmful to vultures. It's commonly believed in southern Africa that vultures find carcasses by dreaming about them; and that, if this power is “ingested” by eating vulture brains, humans too can predict the future. This power obviously presents untold possibilities for financial gain, and unfortunately has led to mass vulture poisonings. In the KwaZulu-Natal province of South Africa, some traditionalist healers also encourage the belief that wearing a mummified vulture head, or inhaling the smoke of a burning vulture brain, can help to predict the winning numbers of an upcoming lottery. Zulus who believe this have been quite willing to obtain the desired vulture parts by poisoning the birds with pesticide-injected carcasses.<sup>[49]</sup> To be fair, not all believers are interested in the vultures' power solely for selfish reasons; some Zulus will kill vultures specifically to harvest the brains for *inyangas* (healers), who require them for problem-solving by way of clairvoyance.<sup>[50]</sup> Regardless of the motives behind them, such killings have been devastating to local vulture populations; persecution of vultures for body parts is a serious threat for the birds in East Africa, and it's now thought to be the single most important cause of decline for vultures in West Africa and southern Africa.<sup>[51]</sup> It's been predicted that the once-common White-backed Vulture may be extinct in KwaZulu-Natal by 2020 if such “harvesting” continues unchecked, with the Cape Griffons of that area and other parts of southern Africa soon following.<sup>[52]</sup>

It's but one step up from trying to foresee events with magic to attempting to manipulate them with magic, and belief in the latter ability was once universal in Africa. The tradition of sorcery



remains widespread even today, and vultures may be involved with it as well. In 1999, the Nigerian city of Port Harcourt experienced a scare over widespread rumors that a child knocked a flying vulture out of the sky – whereupon the fallen bird immediately transformed into a man. A large, angry mob quickly formed around the “vulture man,” and very nearly killed him before the police rescued him. The man had to be taken into protective custody for a week afterwards; and the local media, far from attempting to dispel the rumors, took them perfectly seriously. Some journalists at a press conference about the incident even asked the police if the “vulture man” had attempted to transform into any other animals while in custody.<sup>[53]</sup>

Sorcerers might transform into one particular vulture if they wished to taste the delights of power; the one that the Xhosa recognize as the *inkosi* (“chief”) of the vultures, and which the well-traveled bird painter Louis Agassiz Fuertes described as “the biggest bird I ever saw.” The *inkosi* was of course the Lappet-faced Vulture ([left](#)). Africans familiar with the

ways of the species think of the Lappet-faced Vulture as the ruler of the vultures, with the White-necked Raven (often the first bird to arrive at a carcass) acting as its spy by searching for carcasses for its liege to consume. It's said that if smaller vultures gather at a carcass, they must await the arrival of the chief before beginning to eat, which may be the case if the carcass is large and fresh with a fully intact hide. The Lappet-face's dominance over other vultures at carcasses is attributed by the Xhosa to the smaller vultures' respect for their superiors:

When there is a carcass, such as a dead horse, all the other vultures begin to tear it open in readiness for the chief; as it is well known that the chief cannot stay where there is dirt, therefore the first clear the way for him. When they have done so, they settle at a distance. The chief eats, picking out the morsels to his liking. When satisfied, he departs, and the rest then fall to.<sup>[54]</sup>

Although it's outweighed by the Monk Vulture and several species of griffon, the Lappet-faced Vulture may pack more sheer muscular power into its huge body than any other bird of prey. Certainly no other raptor seems to share its ability to shred the skin of large mammals with its enormous bill, for all the world like a carnival strongman ripping apart phone directories. It really is in a league by itself, as was demonstrated by a field study in Gonarezhou National Park in Zimbabwe, which witnessed a pair of White-headed Vultures claim a nest that had been recently vacated by Lappet-faced Vultures. The White-headed vultures proceeded to lay an egg in the nest; but shortly thereafter, the much bigger original owners of the nest returned, ousted the White-heads, and then incubated and hatched the egg that the smaller vultures had laid. Remarkably, the Lappet-faced Vultures managed to successfully raise the chick to fledging age; however, the young White-headed Vulture, itself a powerful bird with a strong, heavy bill, suffered a little from malnutrition. It was completely unable to tear up and swallow the skin that its foster parents considered to be appropriate fare for "their" chick.<sup>[55]</sup>

Lappet-faced Vultures inevitably attract attention (and admiration) wherever they appear, but they are vastly outnumbered by another plains vulture: the White-backed Vulture, which, at least individually, is not a very prepossessing bird. Modest in size as vultures go, it has neither the brightly colored bare skin of the Lappet-faced and White-headed Vultures, nor the conspicuous "scaled" wing feathers of the Rüppell's Griffon, nor even the strongly contrasting two-toned plumage of its Asian counterpart, the White-rumped Vulture. Aside from its white neck ruff and back feathers, the entire body of the White-backed is a drab and unrelieved mixture of brown, gray, and black; furthermore, the bird seems to be wearing a permanent scowl because of its heavy brow ridges. And yet, thanks largely to the worldwide popularity of Africa's savanna wildlife and the plethora of books and films popularizing it, this dingy and not at all happy-looking bird is in many ways the modern world's idea of the archetypical vulture. No coffee-table photo book or TV documentary about the Serengeti is complete without a shot or two of White-backed Vultures circling in a thermal, plummeting from the sky, or squabbling over a carcass. Other vultures may be present in these shots, of course, but never in anything approaching equal numbers. The recurring popular image of African vultures is of a large and quite dead mammal, surrounded by a sea of long grayish necks topped with beetle-browed heads wielding utilitarian black bills. The White-backed isn't the largest, most colorful, or even the tamest of vultures; but, merely by dint of its visibility in the world's most popular wildlife resort, it has become a symbol of Africa just as the Elephant, Giraffe, and Lion have.

Aside from its coloring, the White-backed Vulture is similar to its Asian counterpart, the White-rumped Vulture - except in one respect. Unlike the White-rumped Vulture, which has adopted a civil lifestyle more fully than any other large vulture, the White-backed usually doesn't frequent towns,

though the birds may sometimes hang about urban outskirts and may be seen near Cattle kraals.<sup>[56]</sup> But then, as long as Africa's wildlife exists in some numbers, this species scarcely needs any handouts from humanity. The birds will gather in vast numbers at most any sizable carcass; even a small impala carcass may be found and devoured by a hundred of them, an assemblage that amounts to, as the South African biologist Peter Mundy put it, "a combined, hyper-active mass of half a tonne!" In these aggregations, the vultures seem to expend equal amounts of energy upon fighting and feeding, and it often looks as though each bird is doing both at once. Due to the tremendous (and noisy) pileups that White-backed Vultures crowd into at carcasses, the South African Vulture Study Group has taken to calling a phalanx of them an "American football team" - with the stipulation that each individual bird is, in effect, a team of one.<sup>[57]</sup>

Against competitors like these, the small size of another African species, the [Hooded Vulture](#), at first appears to be a major, even maladaptive disadvantage. The diminutive Hoods are easily dominated by larger vultures, and can be driven away from a carcass by so lowly a scavenger as a Tawny Eagle. However, the advantages of small size and light weight become clear when vultures gather at a carcass that has already been claimed by Spotted Hyenas, or, more dangerously, Lions. In that situation, the big, heavy White-backed Vultures, griffons, and Lappet-faced Vultures usually keep their distance - and for good reason, as their size makes them incapable of taking off quickly, rendering them vulnerable to attack by the mammalian carnivores. The Hoods behave quite differently, sauntering about their giant terrestrial competitors with seemingly suicidal courage, taking whatever scraps the carnivores drop, and sometimes even dodging between a Hyena's legs in order to tug at a carcass. It seems incredible that the vultures can behave like this without being killed! But their light weight ensures that, unlike larger vultures, they can take off from a dead stop, without a preliminary taxi run, and without any assistance from the wind. If a Lion takes notice of the impudent little brown bird filching bits of its meal, and swats or lunges at it, the Hood can easily leap into the air to avoid it, land out of the Lion's reach, and begin feeding again once the mercurial cat has turned its attention elsewhere. There are few more memorable displays of courage in the animal kingdom than that of a four-pound (1.8 kg) vulture feeding from the same carcass claimed by a pride of Lions, any one of which is upwards of a hundred times the vulture's weight and could easily kill it with a single bite or swat.

This confidence around large mammals has reaped the Hooded Vulture even greater rewards in the age of humans. Humans are just bipedal mammalian scavengers from the Vulture's point of view, and can be approached in much the same way as other large mammals; urban Hooded Vultures will dodge between the legs of people in markets in order to grab tidbits, just as they duck around the legs of Hyenas. In those areas where it pursues a civil lifestyle with humans, sharing their habitats and their food, the Hooded Vulture is almost unbelievably numerous. Between the Congo rainforest in Central Africa and the Sahara Desert in the north, there are hundreds of the birds in most any moderate-sized town. In West Africa, where Hooded Vultures are "ubiquitous," David Bannerman noted that "The sight of these vultures circling overhead is often one's first intimation that a village is at hand." Although the vultures are occasionally hunted for food in some areas,<sup>[58]</sup> otherwise they normally exist unmolested, with belief in misfortune for anyone who harms them,<sup>[59]</sup> and local people often strongly object to them being killed by outsiders.<sup>[60]</sup>

This ability to live in close contact with humans has given the Hooded Vulture opportunities afforded to no other vultures in Africa. Almost uniquely among Old World vultures, Hoods can even live in dense rainforest; but in that situation, they are so dependent on human activities for food that they derive no sustenance whatsoever from the surrounding primal ecosystem.<sup>[61]</sup> These forest



vultures are wild only in the same sense that city Pigeons are wild; they would be forced to leave the forest, or perish, if the humans vanished. If the Old World vultures were originally descended from forest birds, Hooded Vultures in forests represent a counterinvasion, of sorts, of plains-living birds returning to the jungles from which their distant ancestors first ventured. While their confiding habits have rarely endeared the birds to travelers from more industrialized societies, they have made the Hooded Vulture popular among Africans; all the more so because, unlike other civil scavengers like Black Kites, they never attack Chickens or other domestic animals.<sup>[62]</sup> In West Africa, Hoods have even been seen riding on the backs of domestic Sheep and Goats, which apparently vexes the mammals not at all.<sup>[63]</sup>

Hooded Vultures ([right](#)) will eat most any kind of edible refuse, including human excrement. Shit is a rather more valuable commodity to people who practice subsistence-level farming than it is in industrial societies, but its disposal can still pose some serious problems, and that's where the shit-eaters come in handy. Shit-eating (or coprovovery, if you prefer) is a fairly popular way for animals to feed themselves, yet it has received little attention from zoologists, probably due as much to lack of prestige as discomfort of study. Excrement is a staple diet of many fish, countless insects, dozens of mammal species, and a number of non-vulturine birds; including a pair of Antarctic seabird species, the Sheathbills, which subsist for much of the year by eating penguin droppings. The practice of eating what has already passed through someone else's digestive system has been recorded for several different vulture species, including the New World Black Vulture, but it is really a forté only of the Egyptian and especially the Hooded. Excrement is probably not the preferred food of the Hoods; but in wilderness areas, the Hooded Vulture must eke out a living under the shadows of larger vultures. Unable to compete successfully with its more massive cousins at carcasses, in order to survive it must be willing and able to seize opportunities that the larger birds can afford to pass up, and coprovovery is one of those opportunities. Among field biologists working in Africa, Hooded Vultures are notorious for perching above prides of resting Lions, patiently waiting for the big cats to defecate and so provide them with a meal.<sup>[64]</sup> As some of the most markedly civil vultures in the world, the Hoods of West Africa have taken this habit with them into cities. Though it may seem disgusting, it must be stressed that the value of having flocks of shit-eating birds around cannot really be understood by anyone who has grown up with the convenience of indoor plumbing; and the Africans whom the vultures service seem to harbor them no ill will – just contempt.

The Akan-Ashanti people of West Africa even have an origin myth, explaining how the Hooded Vulture came to voluntarily sit among filth. One day, Hooded Vulture and Crow set out to make drums to play upon. While searching for suitable wood to build the instrument, they came across a huge silk-cotton tree, perfect for drum-making; Hooded Vulture immediately claimed the tree as his own, as was his right as the elder. Crow agreed that Hooded Vulture could have the tree, and after a bit more searching found a cedar tree which he could use for his own drum. Hooded Vulture and Crow carved drums out of their respective trees, and began to play them. Their music



pleased the Sky-god; he sent Hawk to bring them before the deity, so that they might play for him in person. Hooded Vulture and Crow flew with Hawk to Sky-god's lair, and they played long and well for him. When at last they were finished, Sky-god complimented their sweet music, and said that he must present them with gifts for the entertainment. He went and fetched two boxes, setting them before the musicians. One of the boxes was beautiful to see, gilded with gold; the other was repellent, covered with filth and slime. Hooded Vulture again claimed the right of the elder, and took the beautiful box; Crow took the filthy box. Thanking Sky-god for his generosity, the two birds took their leave and flew back to their village with their gifts.

When Hooded Vulture at last opened his beautiful, gilded box, he found its exterior rather misleading; there was nothing but filthy slime inside. When Crow opened his nasty-looking box, he found just the opposite: nuggets of pure gold. Hooded Vulture was displeased with his gift, and even more displeased when he learned what Crow had been given. Shortly afterwards, a messenger arrived to tell Hooded Vulture that his mother-in-law had died. Hooded Vulture asked Crow to lend him one gold nugget to bind to his arm, that being a requirement for attending a funeral. Crow lent him the nugget, and Hooded Vulture went to the funeral, where he suddenly had an urgent need to relieve himself. As Hooded Vulture was squatting over the latrine, the nugget fell from his arm into the filth below. Hooded Vulture knew he couldn't return home without Crow's prized nugget, and so he dove into the filth to search for it. And he's still searching; that's why the Hooded Vulture is always seen scratching and pecking at latrines, looking for Crow's nugget so that he may at last return home.<sup>[65]</sup> This habit has naturally led to the Hood being placed in the same company as another ubiquitous coprovores; in the Hausaland region of northern Nigeria, it's said that despite the fact that Hooded Vulture pairs only ever raise one young bird, a female Hooded Vulture always lays two eggs. One of these eggs hatches a vulture chick, but the other produces a fly.<sup>[66]</sup>

One characteristic of the Hooded Vulture's civil lifestyle is very peculiar: it appears to be sharply delineated by geography. North of the equator, Hooded Vultures are familiar as birds of town and village, companions of herders, and disposers of all types of human and animal waste – the birds even appear to be attracted to humans where there's no food to be had.<sup>[67]</sup> South of the equator, Hooded Vultures are less numerous, and they seem less willing to have any contact with humans. In fact, they appear to actively avoid it, depending instead on the natural ecosystems for food.<sup>[68]</sup> A few other vultures also show a discrepancy between civil and primal behavior in different parts of their ranges, but in none is there such a clear-cut and unequivocal boundary between the different lifestyles. It's as though the northern and southern Hoods are two entirely different species; indeed, just such a hypothesis has been suggested, although aside from the behavioral differences there are only small distinctions between the northern and southern birds.<sup>[69]</sup> It is possible that the northern subspecies of the Hooded Vulture evolved specifically in order to take advantage of commensalism; there seems to be little other incentive for the two subspecies of Hoods to differentiate from each other.

No one should be surprised by the Hooded Vulture's willingness to adopt a civil lifestyle. It has all the hallmarks of an animal that can thrive in a civil relationship with humans: it is relatively small, and in primal situations lives alongside a number of bigger and more powerful competitors; but it is also adaptable and able to take advantage of new circumstances and situations. Elsewhere in Africa, however, the civil lifestyle has proven popular with some most unexpected birds. The Lammergeiers inhabiting northwestern Africa occupy rugged terrain that is much the same as that frequented by their counterparts across the Mediterranean in Europe; but, unlike most European Lammergeiers, they don't shun the haunts of humans. Quite the contrary; at least in areas where they

aren't hunted and harassed, the huge birds seem to be attracted by villages, where they feed largely on refuse.<sup>[70]</sup> The sight of a gigantic Lammergeier eating butchers' scraps alongside Egyptian Vultures and Black Kites a fraction of its size must be vexing to those who think of Lammergeiers as "wild" and aloof birds.

Even more curious is the relationship between human and Lammergeier ([below](#)) that has developed in the mountainous regions of Ethiopia. The Ethiopian population of Lammergeiers is the only one in Africa which has not declined drastically in recent decades; and the reasons why are plain to see. Ethiopian Lammergeiers have become largely commensal with humans; they depend on human activities for much, if not most, of their food. The huge birds frequent mountain pastures, towns, garbage dumps, butchers' waste piles, and hotel refuse tips, often in groups of 20 or more. Lammergeiers typically arrive in towns one hour after dawn, the same individuals frequenting the same areas at the same times day after day. The birds fly low above town streets, gliding through the narrow gaps between houses in order to pick up scraps.<sup>[71]</sup> This behavior is particularly prevalent among young Lammergeiers that haven't yet reached adulthood. As unaggressive as the birds appear to be where food is concerned, Lammergeiers will still dominate and drive off juveniles and immatures of their own kind at food sources, just as other vultures do. This ensures that the young birds will have little chance of finding enough food in the vast areas that are claimed as territories by adults. In wild circumstances, most of the young birds would therefore starve to death before reaching adulthood themselves; but in Ethiopia, they have "nursery areas": the dumps and middens of humans. Immature Lammergeiers are considerably more common in Ethiopian towns than they are in open mountain country, and these urbane young birds survive largely on garbage.<sup>[72]</sup> The Lammergeier has displayed a willingness to live (though not nest) in close proximity with humans elsewhere in its range, particularly in Tibet; but for a bird that is ordinarily thought of as the wildest of the wild, and utterly intolerant of human disruption, to find such sanctuary in the towns of Ethiopia is quite remarkable. Another large vulture, the Rüppell's Griffon, has also adopted a partially civil relationship in Ethiopia, whereas virtually everywhere else in Africa it shuns human settlements.<sup>[73]</sup>



The British explorer James Bruce, who sought the source of the Nile in eastern Africa during the late 18th century, described in his *Travels* a strange encounter with a Lammergeier upon a mountain he called "Lamalon" (the location and present-day name of which is unknown). Bruce and his servants were eating their dinner, consisting of "several large dishes of boiled goat's flesh," when a Lammergeier

appeared suddenly; he did not stoop rapidly from a height, but came flying slowly along the ground, and sat down close to the meat, within the ring other men had made round it. A great shout, or rather cry of distress, called me to the place. I saw the Vulture stand for a minute, as if to recollect himself, while the servants ran for their lances and shields. I walked up as nearly to him as I had time to do. His attention was fully fixed upon the flesh. I saw him put his foot into the pan, where was a large piece in water,



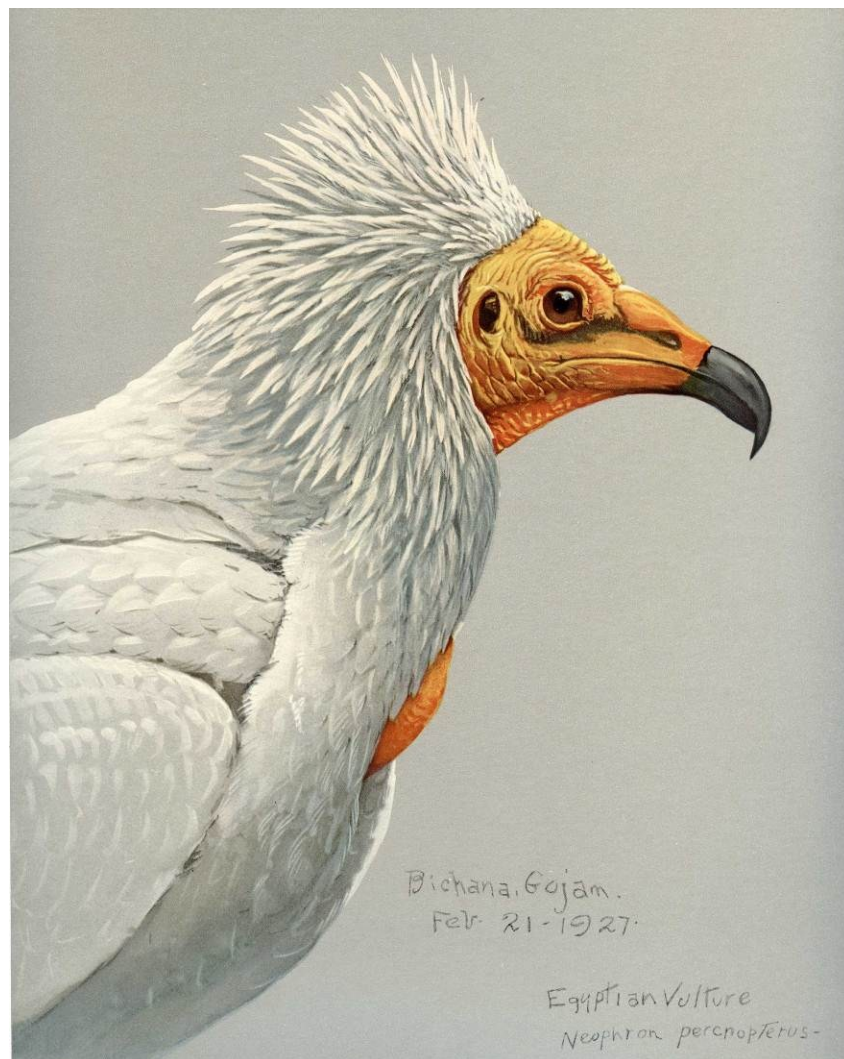
preparing for boiling, but finding the smart which he had not expected, he withdrew it, and forsook the piece which he held. There were two large pieces, a leg and a shoulder, lying upon a wooden platter, and into these he trussed both his claws and carried them off; but I thought he looked wistfully at the large piece which remained in the warm water. Away he went slowly along the ground, as he had come.

The native donkey-drivers of Bruce's expedition, evidently familiar with such occurrences, "were much alarmed, and assured me of his return." When the vulture did return a short time later, Bruce shot it.<sup>[74]</sup> This bird was clearly on no unfamiliar terms with humanity; its behavior resembled that of the Red Kites of medieval London, birds of prey which would sometimes steal food from picnickers in a not-dissimilar manner. Such civil relationships between humans and vultures couldn't work without the tolerance of the Ethiopians, which is bounteous even by African standards. The people of Ethiopia have traditionally been very welcoming of scavengers, and not just the harmless vultures. Spotted Hyenas are despised and feared as potential predators of livestock and humans almost everywhere else on the continent, but in Ethiopia they are commonly seen scavenging in and around towns at night, and these activities are actively encouraged, the Hyenas in effect having become street cleaners. In the town of Harar the carnivores are actually given food rations to encourage them to stay nearby.<sup>[75]</sup> Hyenas roam freely in the town, day and night, without being harassed, and have become incredibly tame as a result.<sup>[76]</sup>

Elsewhere in Africa, only the Hooded and Egyptian Vultures seem much attracted to humans. Egyptian Vultures are familiar companions to travelers in Africa, as they have been for thousands of years. The Englishman Willoughby Verner wrote of the Egyptian Vultures that accompanied the British expedition in the Sudan in 1885:

[D]uring our retreat across the Bayuda desert, these birds constantly accompanied us, halting when we halted. I have a peculiarly vivid impression of awaking at grey dawn and perceiving close to me a pair of white birds whose ghostly forms in the mysterious early morning light of the Desert seemed more than ever uncanny as they walked about among the recumbent forms of our men still asleep in their bivouacs.<sup>[77]</sup>

In most of the Old World, it is the Egyptian Vulture (right) that most enthusiastically pursues a mutually beneficial relationship with humanity by eating garbage, offal, and excrement, but in West Africa the species avoids urban areas,<sup>[78]</sup> probably because they have been claimed by the more gregarious and aggressive Hooded Vultures. A similar situation prevails in the highlands of Ethiopia, where one 19th-century ornithologist found about one Egyptian Vulture for every fifty Hoods.<sup>[79]</sup> Egyptian Vultures maintain a civil



lifestyle by trailing the encampments of nomads, which are less attractive than permanent settlements to Hoods, and where there is usually only enough food for a few vultures.<sup>[80]</sup> The Egyptian seems to be the low bird on the totem pole almost everywhere, and there are so many vultures and other avian scavengers in Africa that it stands little chance of competing on a level field. There's still one area, not part of Africa proper, where the Egyptian reigns unchallenged as the supreme scavenger.

The Canary Islands, lying some 60 miles (97 km) west of the African coast in the Atlantic, were settled by humans in pre-classical times and apparently were known to early seafarers like the Phoenicians. The European discovery and conquest of the islands in the early 15th century is an event that is too often historically overlooked; for aside from the destruction of the islands' native culture, the affair acted as a sort of small-scale dress rehearsal for the conquests in the New World that would come a century later. The earliest French expeditions to the island of Fuerteventura noted that among the island's fauna were "some birds which are big and white like a goose, and are always amongst the people and don't leave any filth".<sup>[81]</sup> These were the *guirre*, the ancient name given to the Egyptian Vultures by the earliest Canarians.<sup>[82]</sup> Until recently, they were a common sight in the islands, commonly seen flying in small numbers over towns and villages,<sup>[83]</sup> and a spectacular one, as the largest land birds to be seen in the Canaries. The respectable, if not exalted, status that the Egyptian



Vulture held among the Canarians eloquently proves a couple of old adages: "size is relative," and "beauty is in the eye of the beholder." These vultures were and still are protected by the Spanish Government that administers the islands, in recognition of their sanitary services.<sup>[84]</sup> The Egyptian is unique among the Old World vultures in its ability to cross large bodies of water. Larger birds like the Eurasian Griffons positively struggle with sea crossings of only a few miles, but the light, buoyant Egyptian has colonized islands hundreds of miles from the mainland. With no serious competition, it has become the dominant avian scavenger on the Canaries. The species also gained a secure foothold on the Cape Verde Islands, about 400 miles (644 km) from mainland Africa, and has even been recorded on the Azores,<sup>[85]</sup> about a third of the way to North America, although there is no permanent vulture population there.

At the opposite extreme from the Egyptian and Hooded in terms of acceptance of humans is the White-headed Vulture ([left](#)), memorably described by Warwick Tarboton as "rather like a character out of the *Rocky Horror*

*Picture Show* - almost comic in its multi-coloured ugliness."<sup>[86]</sup> White-headed Vultures are indeed astounding in their appearance; the most colorful of all Old World vultures, and, with their mix of blue, orange, pink, white, and black, among the most livid-looking of any raptors. On the plains, they



are vastly outnumbered by the other large vultures - one ornithologist calculated the normal proportion as one White-head for every five Lappet-faces for every 50-200 griffons<sup>[87]</sup> - but their appearance and their behavior at carcasses, as described by the ornithologist George Petrides, makes them stand out:

If [the White-headed Vulture] appeared at all, it was the last to arrive, but African assistants invariably remarked that this was indeed the “bwana kubwa,” the big boss. The great eagle-like birds would stride haughtily among the lesser scavengers. Their great beaks were thrust angrily at any bird not giving way before them. They then feed slowly, with apparent dignity, if there was any food remaining at the time of arrival.<sup>[88]</sup>

This species avoids humanity at all costs and is only seen in wilderness areas, traits which led David Bannerman to state that, “It is, in fact, the aristocrat of the West African Vultures.”<sup>[89]</sup>

Their social organization is also very peculiar compared to most other vultures, because they among the few species that can accurately be called “antisocial.” White-headed Vultures are rarely seen in any number greater than two, even at large carcasses, and they appear to actively defend their nesting territories against their own kind as well as other large raptors.<sup>[90]</sup> These traits are more characteristic of highly predatory raptors than of vultures; but then, evidence suggests that the White-headed Vulture *is* highly predatory. There are many reliable accounts of the species attacking live prey, from snakes to flamingoes to Impala; and the pastoral people of Somalia, who are highly dependent on their livestock and so have good reason to be able to identify predators, make a clear distinction between the White-headed and other vultures. They call it *Kolombai* (“predator of lambs and kids”) or *Waharalais* (“killer of young creatures”).<sup>[91]</sup>

Other Africans embody the White-heads’ predatory nature in folklore. The Kikuyu people of East Africa tell that once, long ago, Hen and Vulture lived as friends, routinely visiting each other’s homes and helping each other with their problems. One day Hen visited Vulture to borrow a razor, as Hen’s children had become grotesquely unshaven. Vulture allowed her friend to borrow the razor, but told her that it was very important; Vulture’s only source of income was renting out the razor to interested parties. Since Hen was a friend, Vulture wouldn’t charge her a fee, but she had better be sure to return the razor as soon as she was finished. Hen promised to do so; she took the razor home, shaved her children with it, put the razor away, and promptly forgot about it.

After a few penniless days, Vulture became impatient, and went straight to Hen’s house to demand her razor back. A flustered Hen immediately apologized and went to fetch the razor for Vulture – but though she looked everywhere in the house, it was nowhere to be found. Vulture, quiet yet seething, told her that she’d better keep looking for it; she would pay dearly if she had lost it. When Vulture left, Hen demolished her entire house in a fit of desperation, and scabbled through the rubble, looking for the razor; but she found nothing.

When Vulture returned the following day, she was surprised to see Hen scratching methodically on the ground among the ruins of her home. Vulture felt saddened to see her friend reduced to this; but she was hungry all the same, and couldn’t wait any longer without compensation. She grabbed one of Hen’s children in her talons, and flew away with it clutched beneath her breast, calling to Hen that she would return tomorrow to see if Hen had found the razor. If not, another chicken would have to be sacrificed. But Hen never did find the razor; and that’s why the hen is always scratching at the ground, and why the vulture is always swooping down and carrying off young chickens. The hen still searches, and the vulture still needs food until the search is over.<sup>[92]</sup>



The idea of vultures as livestock killers has been a potentially explosive issue elsewhere in the world, but in Africa campaigns of extermination against the birds by farmers have largely been restricted to southern Africa, the area most heavily settled by Europeans and their descendents. The most common large vulture there, the [Cape Griffon](#), has been intermittently accused of attacking livestock, especially Sheep and their lambs, ever since the early 18th century. Cape Griffons are thought to have switched from a predominantly wild to a predominantly pastoral diet over the past couple of centuries (suffering a reduction in range as a result), and, like its counterparts in Eurasia, the species now feeds largely on domestic animals.<sup>[93]</sup> With farmers' livelihoods at stake, it's all but inevitable that the species would sometimes be accused of killing its prey as well as scavenging it. One 18th-century Boer claimed that

It often happens that an ox returning home alone to its stall from the plough, lies down by the way; it is then, if the vultures perceive it, that they fall with fury down, and inevitably devour the unfortunate animal. They sometimes attempt them while grazing in the fields; and make their attack all together, to the number of a hundred or more.<sup>[94]</sup>

Such stories were very common among the farming community of South Africa, though it seems that actual eyewitness accounts of Cape Griffon predation were few and far between.<sup>[95]</sup> In the 1980s, there were reports of these Griffons even attacking fully grown Cattle, maiming though not killing the animals in the process.<sup>[96]</sup> It's been suggested that many, and perhaps most, of the reports of Griffons attacking livestock actually referred to animals that were already weakened, injured, or incapacitated, especially by giving birth or by being born; thus the Griffons were merely hastening the ends of creatures that were most likely doomed anyway.<sup>[97]</sup> The spate of predation reports at the beginning of the 20th century, on the other hand, more likely referred to vultures driven to desperation after a rinderpest epidemic killed off most of the wild large mammals.<sup>[98]</sup> Recent events in Europe have demonstrated that griffons left without any carcasses to eat can and will make their own if they have to. Elsewhere in Africa, there have been relatively few accounts of vultures attacking livestock. In the 20th century, there were intermittent reports of Rüppell's Griffons and Lappet-faced Vultures killing Sheep in Kenya, but not all farmers believed such charges and those who did still didn't take any lethal action against the birds.<sup>[99]</sup> Even genuine livestock predators weren't often ruthlessly exterminated as they would be elsewhere; when confronted with, for example, eagles that had taken to killing lambs, tribal Africans rarely sought to kill the birds themselves. They settled for cutting down the eagles' nest trees, forcing them to move elsewhere.<sup>[100]</sup> Compared with the rest of the world, the problem of vultures preying on livestock was not a problem at all in Africa, at least until widespread European settlement.

On the whole, attitudes of Africans towards scavengers and wildlife of all stripes were rather more lenient than those held, or inspired, by Europeans. The difference would be made all the more evident by the arrival in force of European conquerors and settlers in Africa from the 17th century on. One little-noted peculiarity regarding the role of birds in African culture is that falconry, the practice of using predatory birds to hunt live prey, apparently was unknown in sub-Saharan Africa until the influx of European culture. This absence may have played a considerable part in coloring Africans' views of the various raptors; certainly in medieval Europe, raptors that could be used in falconry, such as goshawks, true falcons, and Golden Eagles, were generally held in higher regard than raptors that were of little or no use in the sport, like buzzards, kites, and vultures. It's noteworthy that several African languages use their generic terms for eagles, rather than the equivalent words for vultures, to

refer to the Lammergeier.<sup>[101]</sup> This suggests that appearance, not habits, was the deciding factor in determining which recognizable group a bird belonged to.

A story told by the Lamba people of Togo is perhaps the closest thing to a European-style dichotomy between vulture and eagle to be found in Africa. It seems that once, long ago, Mr. Vulture and Mr. Fish-eagle struck up a friendship with each other. They reached an arrangement where Mr. Fish-eagle would bring fish to Mr. Vulture, and Mr. Vulture would take meat to Mr. Fish-eagle. And they were both very happy with their friendship. But the Busy-Body, that inveterate trickster, saw their friendship and became very jealous of them. One day Mr. Vulture found a carcass, and took some meat from it for his friend; likewise, Mr. Fish-eagle caught a fish, and carried it off for his friend. Upon reaching their usual meeting spot in the middle of the bush, the two great birds met, shook hands, and exchanged their gifts. Then they chatted for awhile, bid goodbye to each other, and went to their respective homes. The Busy-Body, who had watched all of this, secreted himself away in his hole near the meeting place, and formed a plan.

A few days later, Mr. Fish-eagle again brought a fish to the meeting place; but he didn't find Mr. Vulture there. Instead, he heard a disembodied voice say "Stand still, Fish-eagle, and let me tell you something; Vulture's son has just died from choking on a fish-bone, and if you bring him fish today, he'll be very angry." Hearing this, Mr. Fish-eagle was horrified; he immediately took his fish back home, and was beside himself with grief at what he had inadvertently done to his friend. Not long afterwards, Mr. Vulture arrived at the meeting place, intending to provide his friend with some nice, fresh carrion. But when he arrived, Mr. Fish-eagle was nowhere to be seen; and he too heard the disembodied voice. It told him, "Stand still, Vulture, and let me tell you something; Fish-eagle's wife just died from choking on a meat-bone, and if he sees you today, he'll be very angry that you've brought him more meat." And Mr. Vulture, saddened, returned home with his meat. Thus the friendship died, each bird thinking that the other was furious with him. And that's why, to this day, vultures stick to meat, and fish-eagles stick to fish.<sup>[102]</sup>

Although European settlers in Africa maintained their odd, illogical dichotomy between vultures and eagles, their overarching judgment was that any bird with a hooked bill, be it an eagle, kite, hawk, or vulture, was a predatory threat to livestock (or even to children), and should be dealt with accordingly. There were no qualms about putting this belief into action in a region where it was an alien concept. In the Dutch dialect of Afrikaans spoken by the Boers, the Lammergeier came to be known as *Lammervanger* ("lamb catcher"). This name was applied to any bird that was thought, with or without evidence, to kill livestock, including several species of large eagle as well as the Lammergeier.<sup>[103]</sup> Unfortunately for the Lammergeier, Dutch colonists often discerned no difference between it and the eagles, and the bone-eating vultures were persecuted as livestock killers just as were their European counterparts. As in Europe, Lammergeiers were often accused of killing lambs in southern Africa, though there seems to be even less hard evidence for such a habit here than there was in Europe. In southern Africa, wild and domestic animals are said to never exhibit alarm in the presence of Lammergeiers,<sup>[104]</sup> unlike in Eurasia where such reactions are sometimes elicited by the birds.

Much like the Lammergeier, the [Palmnut Vulture](#) was and still is thought of as an odd bird out. With its striking black-and-white plumage, the Palmnut is one of the characteristic birds of Africa's waterways, along with the African Fish-eagle and the various flamingoes; it's also the only vulture found throughout most of Central Africa's vast rainforest. It must be admitted that this odd bird is really not a vulture at all; aside from the patches of bare skin on its head, it has nothing in common with the typical vultures, differing from them in just about every detail. The debate over just what

category of raptor the Palmnut Vulture belongs to has been going on since the late 18th century (not long after the bird was “discovered” by European science), and continues today. Thomas Pennant, the man who can be credited with the first published description of Palmnut Vultures in 1778, first encountered the birds in Wales, of all places. They had apparently been obtained by an animal collector from a traveler to Africa, quite possibly as a result of the slave trade<sup>[105]</sup> (enterprising slave ship crews often captured potentially valuable small, exotic animals to add to their haul). Pennant thought of the species as a vulture, albeit a very small one, and the species was then successively argued to be a sort of junior Lammergeier, a missing link between the vultures and fish-eagles, and even a primitive relation of the snake-eagles. Its various common names reflect this confusion; in one place or another, it has been dubbed Palmnut Vulture, Fishing Vulture, and Vulturine Fish-eagle. *Gypohierax angolensis* positively exemplifies the problems that can arise with the categorization of living things.

Such problems seemed not to trouble the people of the kingdom of Benin, in what is now Nigeria, who wore Palmnut Vulture feathers in order to inform one and all of their longevity, high status, and great achievements. Chiefs of the kingdom maintained shrines to their ancestors in which were kept carved wooden heads, their exalted status signified by a single Palmnut Vulture feather that projected from the side of each head.<sup>[106]</sup> The Efik people of the same region used Palmnut Vulture feathers as declarations of war. One tribe would send a feather, along with a wad of gum, to another tribe as a way to threaten war; if the feather was accepted, hostilities would immediately commence. Thus the Efik word for the Vulture, *ituen*, could also mean “threat” in the right context. The *Ntan-ituen*, the Palmnut Vulture’s feather, could be worn as a headdress only by a warrior who had killed or captured an enemy in battle.<sup>[107]</sup>

Associating such belligerent acts with this particular bird seems a bit peculiar; for despite its famously powerful grip, the Palmnut is the most innocuous and inoffensive of vultures. Its short, broad wings are better suited to low-altitude flapping flight than the gliding and soaring of true vultures; and this ability, combined with its unique diet, has allowed the Palmnut to thrive in forested, humid environments that are off-limits to the true vultures. Several of the more generalist raptors have been reported to eat fruit, including two other African birds, the Gymnogene and the Black Kite. But the Palmnut Vulture is unique among all the birds of prey in that it is primarily herbivorous; a *majority* of its food consists of the fruit from which it takes its common name. Curiously, in some parts of West Africa the Vulture’s flesh is considered very appetizing, and it is hunted for food.<sup>[108]</sup> Since guns have become readily available, the vultures are hunted with shotguns loaded with small pebbles, which must be rounded and smooth if not to damage the weapon. Thus the Oji speakers of West Africa have a proverb: “If you become smooth, pebble, they will fight the Palmnut Vulture with you.”<sup>[109]</sup> And fought it they have; the species is now very scarce in Liberia due to uncontrolled sport shooting.<sup>[110]</sup>

In West Africa, it’s said that evil spirits from heaven appeared on Earth and demanded that everyone make sacrifices to avoid “accidental” deaths. The Palmnut Vulture, trusting in the power of the gods, refused to make any sacrifices; but the Hooded Vulture did. As a result, Hooded Vulture was able to walk among people bravely, and was never at a loss for food; if he became hungry, his doppelganger in heaven would merely cause a catastrophe of some sort, and he would have all the food he needed. Humans may not even lay a finger on him. But Palmnut Vulture, who refused to sacrifice, is fair game; people catch him, kill him, and even eat him.<sup>[111]</sup> Though it suffers from persecution just like its more carnivorous cousins, the largely frugivorous habits of the Palmnut Vulture have paid dividends since the European settlement of Africa, with many of the birds able to



occupy large areas only because palms are artificially farmed there. But it seems that the gigantic industrialized palm plantations established in areas like the coast of Angola don't favor the vulture, probably because the plantations offer only palm fruit and nothing else to eat, whereas the vultures still require other kinds of food to survive.<sup>[112]</sup>

Sustenance in far greater abundance was provided for other vultures by big game hunters, who journeyed to Africa in order to belatedly finish what humanity had begun during the ice ages. As mentioned [in Chapter 2](#), the hunters of Africa's megafauna are probably the closest thing to the hunters of the Pleistocene giant mammals that the modern era has produced, and their attitudes towards vultures may therefore be instructive. Personal feelings towards vultures varied among the big game hunters, but there were few who would have disagreed with William Cornwallis Harris when he described them as "gaunt and ravenous harpies . . . summoned by the well known crack of the rifle to take possession of the quarry that had fallen - the promptitude they evinced in discovering the booty, being scarcely less surprising than their alacrity in disposing of it."<sup>[113]</sup> Like the native African hunters before them, white hunters soon learned to be wary of leaving their kills out in the open for even a brief time. François Le Vaillant recorded an incident in which he shot and killed three zebras, one after the other, and left the carcasses to fetch his wagon, parked some three miles (4.8 km) away. Upon returning, he found nothing left of the Zebras but their bones, "upon which some hundreds of Vultures had gorged themselves."<sup>[114]</sup> A 19th-century British traveler, John Kirk, mentioned that, "if game be left for an hour in the open plain while the men come to carry it off, the birds will descend, and in a very short time completely devour it"; though he added that the vultures could be deterred "if it be covered over with a little grass or with branches."<sup>[115]</sup>

The birds were considered a royal pain, in other words; although at least they might help hunters track wounded prey, which was a not-inconsiderable boon. Compared to African hunters like the !Kung San, who may let as many of half of all the prey animals wounded in their hunts escape uneaten, white hunters were much more avid in tracking down and killing any of their prey.<sup>[116]</sup> For most, it was a matter of pride to trail and finish off wounded prey that might otherwise escape and survive, or escape only to later die of injuries. Unlike the San, however, white hunters often saw nothing wrong with removing a particularly valuable part of a carcass, such as the tusks from an Elephant or the horn from a rhino, and leaving the remainder for scavengers. This latter attitude goes a long way towards explaining why, by the end of the 19th century, Africa's vultures had attained an abundance probably never before equaled. Contemporary observers described Africa's dwindling game animals "watched from every little rise by troops of vultures."<sup>[117]</sup> The presence of the birds came to be so inextricably linked with the destruction wrought by the big game-hunters that some thought the vultures themselves to be unnatural components of a badly disrupted ecosystem. In the mid-1940s, when a campaign was undertaken to establish a game reserve in Kenya, the catchphrase used to sell the idea was that the park would be, "The one place in Kenya where no vultures fly." Tsavo National Park was duly established in southern Kenya, on the rather inauspicious date of April 1, 1948; but, as it turned out, the catchphrase was overly optimistic. Poachers entered the park and killed many of its Elephants in the weeks after its establishment, and according to one investigator "the sky over some sections of the park was literally black with vultures."<sup>[118]</sup>

Many of the myths and legends about Africa fostered by white hunters are still prevalent today; none more so than the legend of an "elephant graveyard," an enormous ossuary to which all of the continent's Elephants are said to travel before they perish. The graveyard has never been seen by humans, which of course explains why Elephant skeletons are so seldom encountered. In his 1931 book *Ivory, Scourge of Africa*, E. D. Moore suggested that the "elephant cemetery story may have been

started by the natives finding a group of skeletons . . . of elephants that had died from drinking from a poison-impregnated water hole, or from lack of water during a severe drought,” and that this discovery was then exaggerated until it morphed into a “cemetery.” However,

the stubborn fact that so many hunters, through years of wandering, have never seen the remains of an elephant that had died a natural death, when according to all natural and mathematical reasoning there should be many such carcasses found, still plagues us.

He suggested a possible answer to this conundrum: rather than being discovered by white hunters, the Elephant carcasses were discovered by natives, who were alerted to their presence by vultures. As an Ashanti proverb puts it, “The vulture has no gun, but he sells elephants’ tusks”; meaning that the locations of dead elephants, and their valuable tusks, were most often revealed by circling vultures. Or, as Moore put it, “when an elephant dies its huge carcass probably does not lie long before its presence is noticed by a vulture . . . ever on the lookout from its lofty position in the sky.” The circling of the vulture over the deceased pachyderm would then attract other vultures, and before long, “ensuing fighting and noise around the dead beast will attract the natives with equal promptness.” The carcass would then be dismembered and scattered by all of the scavengers, its bones cast about to decompose in undiscovered isolation from each other, rather than in an attention-grabbing ossuary.<sup>[119]</sup> One need only read between the lines of this explanation to reach the possibility that the African natives, well aware of the comparative ignorance of white hunters in reading the meanings of vultures’ movements, had invented the whole “elephant graveyard” story just as a way to yank their chains; but perhaps that would credit them with too much of a conspiratorial air.

Despite such incredulous stories and zoological dead-ends, many mysteries of vulture behavior were first unraveled in Africa; even of behavior that had surely been observed by scientifically-inclined individuals elsewhere and earlier. This is largely because a disproportionate share of scientific effort has been focused on the wildlife of the last megafaunal continent; but also because the African vultures are relatively easy to observe, often being incautious and unwary around humans when compared to vultures elsewhere in the world that have suffered centuries of constant persecution. European scientists have discovered much in Africa about the Lammergeier, for example, that was only later recorded from the seemingly more accessible populations of that bird found in Europe. There’s a possibly apocryphal story that the British scientist Julian Huxley was about to put a paper into print that emphatically denied that Lammergeiers ever dropped bones, when a Lammergeier-carried bone was dropped squarely onto his head as he was walking in the Ngorongoro Crater in East Africa.<sup>[120]</sup> (A case of enlightenment descending from heaven if there ever was one.) That particular incident may have been a revelation for Huxley, but it was hardly much of a shock for the scientific community at large; enough credible observers had seen and would continue to see bone-dropping in Europe, in the British possessions in India, and in Africa that it wasn’t going to be dismissed out of hand. But another vulturine behavioral quirk - this one exhibited by the Lammergeier’s smaller relation - stirred up a much greater furor, and has had a surprisingly enduring impact upon both popular and scientific conceptions of vultures.

At least as early as the 1830s, reports were beginning to filter back to the scientific establishment in Europe about some very strange behavior on the part of Africa’s Egyptian Vultures; namely, that the birds had been seen using an ingenious technique to break eggs. This wouldn’t seem worthy of much notice in itself, except that the eggs in question were Ostrich eggs, which are notorious for their toughness as well as for their three-and-a-half pound (1.6 kg) size. The Ostrich’s eggshell is about a sixteenth of an inch (1.6 mm) thick, and when intact it’s completely impervious to

ordinary attacks by birds or most mammals. Africans living in the Ostrich's range routinely fashion the eggs into durable watertight containers and carry them around on their travels. Young Lions sometimes play with the eggs, batting them around in the manner of cats swatting at balls of string, but rarely if ever manage to actually break them. The idea of the raven-sized, delicately-built Egyptian Vulture managing to breach one of these eggs seems simply ludicrous; and it would be, if some members of the species hadn't discovered the power of the projectile.

One of the earliest published reports of this strange behavior is found in Charles John Andersson's laboriously titled book *Lake Ngami; or, Explorations and Discoveries during Four Years' Wanderings in the Wilds of Southwestern Africa*, published in 1856. At the end of Chapter XX, in which he dwelt at length upon the world's largest bird, Andersson noted that "the ostrich has other enemies besides man. Beasts as well as birds are said to seek and devour their eggs with great avidity." He quoted a Sir James Alexander for the following account, which was "given on the authority of the natives about the Orange River." Alexander told Andersson that the natives had informed him that, after an incubating Ostrich had left its nest during the day,

a white Egyptian vulture may be seen soaring in mid air, with a stone between his talons. Having carefully surveyed the ground below him, he suddenly lets fall the stone, and then follows it in rapid descent. Let the hunter run to the spot, and he will find a nest of probably a score of eggs, some of them broken by the vulture.<sup>[121]</sup>

This was only one of a number of such reports published in the scientific press during the 19th century. Some, like Alexander's native contacts, claimed that the vultures broke the eggs by dropping stones from the air; others maintained that stones were thrown by grounded vultures.<sup>[122]</sup> Regardless of the mechanisms involved, these reports did not find a receptive audience. Even if the scientific establishment of the time wasn't inclined to treat all native stories about animals as the mythical products of primitive and superstitious minds - and it was - the core problem was that, until well into the 20th century, the use of tools was considered to be a solely human prerogative. The idea that *any* non-human animal, let alone a lowly vulture, would use stones as projectiles was so outlandish that it didn't even warrant a denial. Andersson himself made no comment on Alexander's story except to say that, "Nothing of this kind ever came under my notice."<sup>[123]</sup>

The behavior thus remained a little-known and unconfirmed artifact of ethology until 1966, when two scientists stumbled upon it in action by sheer chance. Jane Goodall and Hugo Van Lawick were wandering across the Serengeti National Park in a Land-Rover, engaged in studies of Africa's Wild Dogs, when Van Lawick noticed some vultures dropping from the sky in the distance. The vultures had been attracted to a clutch of Ostrich eggs, which were abandoned by the adult Ostriches when a grass fire had swept through the landscape nearby. Unusually, some of the eggs were broken; and, as Goodall recounted in the May 1968 issue of the *National Geographic*, they soon discovered how that had happened:

"He's using a tool" Hugo and I exclaimed almost with one voice.

Amazed, we watched an Egyptian vulture . . . pick up in his beak the stone he had just thrown down. The bird raised his head and once more threw the stone at the ostrich egg lying on the ground before him.

Careful observation of the birds established a pattern: a Vulture would first spot the Ostrich eggs, then pick up a stone and walk towards them, throwing the stone over and over again as it approached. Finally, when the eggs were reached, the bird would hurl its tool repeatedly, hitting its targets with



about half of its attempts, until the shell cracked. It normally took about six to twelve hits to make a hole large enough for the Vultures to probe into the eggs with their long, thin bills. Intrigued by this behavior, Goodall and Van Lawick later experimented with wild Egyptian Vultures, baiting the birds using fake eggs of different colors, shapes, and sizes. They concluded that the characteristic egg shape, rather than its color, was the important factor in stimulating the Vultures to grab their stones and begin tossing - although a synthetic giant egg six times larger than that of an Ostrich seemed to excite them even more than the real eggs.

A pair of tourists who happened by during this giant egg experiment were completely uninterested in the goings-on, preoccupied as they were with finding some Lions to watch. Goodall recalled a very different reaction from an old Maasai headman, who had joined them as they were watching Vultures breaking eggs in Olduvai Gorge:

When the birds had left, the chief joined us as we went to collect the stone tools. With an expression of wonder that I shall never forget, he picked up a stone, gazed at it, and then, with a faithful imitation of the vulture's forceful movement, flung it down onto the broken shell again and again.

"Ey!... ey!... ey!" he kept exclaiming in amazement.<sup>[124]</sup>

Despite the old Maasai's astonishment with the vultures' stone-tossing, it's almost certain that the behavior was known to Africans long before modern science became aware of it. Even so, Goodall and van-Lawick's articles - one in the May 1968 *National Geographic*, and the initial report in a December 1966 issue of the science journal *Nature* - were the first thorough documentations of the behavior, and answered the question of how the small Egyptian Vulture could break through the defenses of eggs that were invulnerable even to the giant Lappet-faced Vulture.

Since these first reports, scientific opinions have differed widely on the origins and significance of this stone-tossing, with some researchers postulating that the behavior is entirely learned and confined to certain Vulture populations (thus representing a case of cultural transmission),<sup>[125]</sup> and others claiming that the rock-throwing is entirely instinctive and that there is no learning of any kind involved, other than basic trial-and-error. The consensus now is that the truth lies in the middle: the behavior is based on instinctive actions, as hand-reared Egyptian Vultures with no contact with others of their kind can learn how to do it;<sup>[126]</sup> but not all Egyptian Vultures do know how to toss stones, and some can perform the behavior much better than others. Less-talented Vultures will often throw soft objects, like clods of soil or balls of dung, which could never break an egg.<sup>[127]</sup>

The trigger for the behavior is simply the appearance of the egg; its shape, not its size, is what initially attracts their attention. When faced with smaller eggs, an Egyptian Vulture will ordinarily either break into the shell with its bill, or, if a shell is too tough, pick up the egg in its bill and hurl it to the ground, breaking it open. Neither of these strategies is of any use with an Ostrich egg; but upon finding an Ostrich egg far too big to either break into, or to pick up and toss, the sheer frustration of finding what they *know* is a superb source of high-quality food, yet being unable to reach it, might cause the birds to pick up and toss egg-shaped stones instead. When tossing their stones, the Egyptian Vultures exhibit a strong preference for stones with a smooth and rounded shape, rather than jagged ones, even though the latter would likely be more effective in cracking a thick shell.<sup>[128]</sup> Patterns of behavior in which thwarted actions are replaced by similar though different ones are known as "displacement" or "redirected" behavior, and are very common among animals of all kinds, including ourselves (though we dignify them with the term *passive-aggressive behavior*).

In short, the Vultures seem to possess no instinctive recognition of the problems presented by an Ostrich egg, and certainly have no similarly instinctive method of breaking into it; the birds have to solve that latter problem on their own, even if the solution is at first only a happy accident. Among Egyptian Vultures that are experienced at dealing with Ostrich eggs, there appears to be some insight involved in their efforts to break them, as the birds may search for suitable stones over wide areas, and will carry them back to the eggs over distances of a kilometer (0.6 mi) or more. More than any other vultures, Egyptians specialize in eating eggs; they are well-known and much-feared visitors to the vast breeding colonies of Africa's flamingoes and pelicans, where they readily raid nests for both eggs and chicks. The Vultures break these eggs by lifting them in their bills and dashing them to the ground, in motions that are essentially identical to those which they use to throw stones, which leaves little doubt from whence the stone-tossing behavior first arose.<sup>[129]</sup>

No other species of bird has been seen trying to copy the Egyptian Vulture's stone-tossing, although other vultures and eagles as well as the highly intelligent White-necked Ravens are commonly seen in the vicinity when the Egyptians are throwing their rocks – and are perfectly happy to pirate the eggs once the Egyptians have smashed them open. It appears that at least some Egyptians are also able to adapt the behavior to foods other than eggs: an Egyptian Vulture in India has been seen to pick up a stone in its bill and drop it on the shell of a live turtle several times, though without any apparent effect on the reptile;<sup>[130]</sup> and an Egyptian in Israel reportedly held a stone in its bill and used it as a mallet, pounding a live monitor lizard on the head until it died.<sup>[131]</sup> (Incidentally, the latter appears to be the only credible observation of a wild raptor using a tool to kill live prey.) The only other vulture that displays anything remotely like this behavior is the Egyptian's closest relative, the Lammergeier, which in addition to its usual bone-dropping has been seen to hold a bone in its bill and hammer it on the ground in order to break it.<sup>[132]</sup> However, there has never been any credible observation of Egyptian Vultures dropping stones in flight as Lammergeiers drop bones. It's likely that the earlier reports of Egyptian Vultures doing this ultimately stemmed from the accounts of Africans who encountered vultures eating Ostrich eggs with stones nearby, and who naturally assumed that the birds had dropped the stones from the sky, though without actually having seen them do so.<sup>[133]</sup>

For our purposes, the mechanisms of the behavior aren't as important as its impact. The observations of Jane Goodall and Hugo Van Lawick sparked off something of a furor in the zoological world; at the time of their reports, tool use among wild animals was thought of as a prerogative of a very select club with only four members: the Chimpanzee, the Gorilla, the California Sea Otter, and a species of Galapagos finch.<sup>[134]</sup> It goes without saying that all of these creatures were also thought to be remarkably clever. Birds of prey were not highly rated in the animal intelligence stakes during the 1960s; they were generally considered to be “extremely stupid creatures” (in the words of the biologist Konrad Lorenz), and thanks to centuries of prejudice against them and their scavenging practices, vultures were thought to be even dumber than the other raptors. That the reviled little Pharaoh's Chicken should be able to shatter the eggs of the world's mightiest bird - calcite fortresses that defeated the best efforts of all but a few other creatures - threw this line of thinking into serious confusion, and has provided a major impetus to the recognition of intelligence in vultures and other raptors.

Since then, it's been suggested that due to the dependence of young vultures upon their parents after fledging, young Egyptian Vultures would likely make the critical connection between the instinctive egg-throwing and the learned stone-tossing only *after* watching their parents or some other experienced adults engage in the behavior. There may be a "critical phase," presumably during the

first few years of life, which is the only time when stone-tossing can be learned properly. This could explain why some Vultures are far more skilled egg-breakers than others, and why some seem never to develop the behavior at all; an Egyptian Vulture raised in a time and place where Ostrich eggs were absent would probably never learn how to break them.<sup>[135]</sup> Like so many other animals that are thought of as exclusively African today, Ostriches once ranged into southern Eurasia, and even in historical times could be seen in Arabia and other parts of the Near East. It remains an open question if the Egyptian Vultures inhabiting these areas ever learned to break Ostrich eggs, but there seems to be no reason why they wouldn't have; certainly Egyptian Vultures living outside of the modern range of Ostriches have been seen tossing stones.<sup>[136]</sup> It's likely that this technique, the closest thing to a cultural heritage that any vulture is known to possess, was lost when Ostriches were exterminated outside of Africa.

With vultures, as with humans, cultural traditions cannot persist where the conditions that promoted and fostered them have changed. Just as Ostrich egg-breakers have vanished outside of Africa, there are also few vulture-trailing humans left within Africa. Agricultural peoples often speak of those humans who pursue a hunting-gathering way of life with smug condescension. Although Africa has hosted civilizations of all sorts throughout its history (and, in any case, the manner in which a society feeds itself is not an invariable indication of its advancement), the world as a whole has often looked down at Africa as primitive, or even savage. This was a continent where some hunter-gatherers were still following vultures to find their protein, while a great many people in America and Germany and Japan were having fresh meat delivered to their doorsteps. It must be said that most of the people who have journeyed to Africa from elsewhere in the world were never much interested in the vulture-trailing traditions that have persisted for millions of years; nor in the other valuables that Africans insisted the vultures could lead them to.

Except for one. In the revelations about the Egyptian Vulture's stone-tossing, about the finely honed mutually advantageous relationships that the civil vultures have established with Africa's people, and about the complex and intricate vulture guilds of the plains; and in the millions of man-hours spent studying the vultures of savannas, mountains, and forests, a treasure of another sort was discovered by the dedicated souls who had little cause to trail vultures to carrion, nor any reason to believe in the stories that vultures could predict the future. In today's world, there is nothing more valuable than knowledge, especially when it pertains to the rapidly vanishing secrets of nature. It seems curiously appropriate that the *Ouri-gourab*, which once informed humans of the secret of the Lion's prey, now has provided a ray of hope in our increasingly frenetic search for minds elsewhere in the world, or in the universe, that bear some slight resemblance to our own. The Egyptian Vulture's scientific name of *Neophron percnopterus* - adopted in 1809, when its stone-tossing was only a laughable rumor - has thus proven to be quite fitting, despite its oddly stilted English meaning.

A "Dusky-winged childish mind," indeed.



## Chapter 6

# Ghosts of Thunderbirds Past: Vultures In the pre-Columbian Americas

Hear my voice, ye warlike birds! I prepare a feast for you to batten on;  
I see you cross the enemy's lines; like you I shall go.  
I wish the swiftness of your wings; I wish the vengeance of your claws;  
I muster my friends; I follow your flight.  
-War song of the North American Chippewa tribe

... and for three years there was hunger. The corn had stopped growing. ... Painted are people being eaten by vultures and coyotes.

-The Aztec Codex Chimalpopca, 51:18-32 (translated by John Bierhorst)

In the beginning, there was only darkness.

Out of this darkness was born Earth Doctor, who looked everywhere and yet could see nothing. With his powers, he created things to break the monotony of the darkness: greasewood plants, termites, and a great ball of dust, the Earth. At first, this ball was entirely covered with water, but Earth Doctor pushed the liquid aside here and there, leaving some of the land dry. Still the Earth was not solid, and it wobbled unsteadily as it whirled in the darkness. Earth Doctor made a sky to encase the precious sphere, but it didn't steady the Earth. Nor did a second sky, which he placed lower than the first. Deciding to try a different tactic, Earth Doctor held his torch behind his back, causing the light of its flame to cast his shadow on the ground. He seized the shadow in his hand, and from the substance of the silhouette created Nui, the Turkey Vulture.

Other beings were also created by Earth Doctor: Elder Brother, the first man; Nasia, the first woman; and Coyote. Earth Doctor himself changed his form; as Mockingbird, he quieted the land, and as Spider, he drew silken thread down from the sky to the earth and all around the world, creating a canopy for the clouds to rest upon. The Earth was then firm and steady; but it had no features, no rivers or mountains. Its surface was as smooth as that of a bubble. Earth Doctor called Nui, and bade him to give features to the Earth. Nui sang, "Nui is the bird who gives shape to the earth, Nui is the bird who gives shape to the earth, Nui is the bird who gives shape to the earth, Nui is the bird who gives shape to the earth, Nui is the bird who gives shape to the earth." Dropping from the sky, Nui drove his wings into the earth, and cut riverbeds and canyons out of it with his feathers. But the ridges of the mountains still stretched on and on, without peaks or valleys. Seeing this, Nui sang, "Nui is the bird who gives shape to the mountains, Nui is the bird who gives shape to the mountains, Nui is the bird who gives shape to the mountains, Nui is the bird who gives shape to the mountains, Nui is the bird who gives shape to the mountains," and with the edges of his wings sliced into the rock,

carving the peaks and valleys of all the Earth's mountain ranges.<sup>[1]</sup>



Thus do the O'Odham people of southwestern North America tell of the creation and shaping of the land. Clearly, the Turkey Vulture was (and still is) a conspicuous and powerful presence in their world. They were far from alone in this; all across the Americas, from the Pacific to the Atlantic and from the Great Lakes to the Falkland Islands, the peoples of the New World admired and venerated the vultures who shared their lands. We already know the strange story of how the New World vultures originally developed from distant stork-like ancestors, and we last left the Americas with the bleak tale of what happened to so many of their vultures as humans of the Clovis culture arrived and decimated the native large mammals near the end of the Pleistocene. The geographic situation of the Americas changed drastically soon afterwards, as the Bering land bridge that had allowed humans to migrate to the New World en masse was finally swamped by the seas rising in the post-ice age heat,

cutting the Americas off from land contact with the Eurasian/African supercontinent. Except for sporadic and scarce visitors sailing from overseas, the people (and most other living things) of the New World would remain isolated from the rest of the world for the next nine and a half millennia.

This isolation left the people of the Americas, henceforth known as *Amerindians*, in a unique situation. Having spent close to ten thousand years with minimal contact with the rest of humanity, their cultures evolved in a fashion unlike any others before or since, and this cultural solitude was an advantage as often as it was a liability. In splendid seclusion, their creative arts developed spectacularly, perhaps more so than those of any other contemporary cultures; one need only read the awestruck accounts of the first Europeans who saw the kaleidoscopic cities of the Aztec and Inca to realize this. Though the classic-period Maya people, whose civilization rose and fell long before Columbus, brought about the demise of their own society partly through misuse of their natural resources, other Amerindian societies learned to live on their lands in as benign and undamaging a manner as any humans have yet managed, thanks in no small part to freedom from having to deal with the interminable conflicts and disasters of the Old World.

As the Bering land bridge disappeared before humans had accomplished much in the way of animal domestication, the Amerindians had few domesticated animals; most had only Dogs, although some South American societies also had Llamas, Alpacas, and Guinea Pigs. This condition may not seem like an advantage, until one realizes that most of the diseases that so often made the Old World a living hell, from smallpox to the common cold, were originally contracted from domestic animals. (15th- and 16th-century European explorers, almost all of whom had suffered through debilitating and disfiguring diseases at some point in their lives, were often astonished at how healthy the Amerindians appeared to be.) But since none of the Amerindians had been exposed to the lethal and contagious illnesses that had plagued the Old World for so long, they also had no medicinal or biological defenses against them. Coupled with their lack of any riding animals and the relative primitiveness of their technology, which seldom progressed beyond the level of the Old World's Neolithic societies, this blissful ignorance of Eurasian plagues would ultimately prove to be their undoing when Europeans arrived in force.

Most of the cultures of the Americas had not yet developed systems of writing by 1492, and so even advanced and complex civilizations like those of the Pacific Northwest are technically prehistoric, having left no static historical records for modern-day researchers to peruse. One civilization, the Maya, had developed a system of writing long before Columbus arrived; but the content of their writings was largely restricted to national legends and government records, and in any case most of them were destroyed without prior recording by European conquistadors in the 16th century. And so, we are left with the more durable form of oral literature for most of this chapter's material. Oral literature is by no means inferior to its written counterpart, but it offers very different challenges to speaker and listener (or, in this case, writer and reader) alike. Oral tales will inevitably change each time they are told, by accident or design, and a down-to-earth, mundane fable of everyday reality may become a fantastic, larger-than-life myth of realms beyond imagination within a few generations. For our purposes, the greatest difficulty with Amerindian oral literature is that the tales surviving to the present day have almost certainly been modified for the drastically changed post-Columbian world, and may no longer accurately reflect the attitudes of their pre-Columbian progenitors. With a couple of exceptions, I've omitted any tales from this chapter that have obvious clues of post-Columbian origins (e.g., Christian allegories, or guns or horses in prominent roles), but it remains a matter of opinion how accurately the stories told here reflect the true feelings of pre-Columbian Amerindians towards vultures.



Still, there are some very definite pre-Columbian themes remaining in Amerindian lore, which can be easily identified by their lack of similarity to anything in European culture. In general, Amerindians viewed the natural world differently than did the peoples of Eurasia, and especially from those of Europe. To most, if not all of the pre-Columbian peoples, non-human animals were not “lower” than humans, as they were so often thought of in the Old World. Neither were they inhabitants of a different spiritual plain, or the results of a second and lesser act of divine creation. Doubtless this recognition of non-human equality was fostered by the general lack of advanced agriculture in the Americas, as ways of life that depend on farming almost inevitably isolate their adherents from most of their fellow creatures. Amerindian legends often spoke of animals as relatives to the people who shared the earth and sky with them - siblings, cousins, even parents - and animals were widely accorded that nebulous trait that we would call “sentience.” Amerindians had little difficulty in believing that animals could reason, and could communicate amongst themselves as effectively as humans could communicate with each other.

Even while allowing that it must leap such vast cultural gaps, oral literature has often proved to be a remarkably effective tool for preserving experience that is far removed in time and point of view from the present day; although, unfortunately, there's little that this oral literature can tell us about the New World's many extinct vultures. Aside from the legends of the Thunderbirds (which will be dealt with later) and similar “big bird” tales, about the only hint that Amerindians may have been familiar with some of the extinct vultures is found in a most unexpected place: the costumes used in ritual dances. Many tribes of western North America used the huge feathers of California Condors when making the garments for those dances. This condor-couture fashion wouldn't be all that unusual, except that certain tribes of northern California sometimes spliced Condor feathers together, in order to make a composite feather far larger than any that could be seen on a living bird.<sup>[2]</sup> Among the Tolowa and Yurok people who dwelled along the Klamath River, it was important that men who participated in the traditional White Deerskin Dance wore pins in their hair, which were made from the wing and tail feathers of Condors as well as those of eagles. Rather than placing feathers in the pins singly, several Condor feathers were normally sewn together on a strip of deer hide, resulting in a construct that looked like one enormous feather more than 20 inches (51 cm) long.<sup>[3]</sup> Some costume-makers even spliced together two of a Condor's 24-inch (61 cm) long primary feathers, which resulted in a super-feather almost four feet (1.2 m) long.<sup>[4]</sup> This ritual regalia certainly doesn't present incontestable proof that the composite feathers were first modeled after feathers even larger than those of Condors - like those of the gigantic teratorns - and that they came into use only after the teratorns' extinction exhausted the supply of genuine teratorn plumage, but they are intriguing nonetheless. We can't expect to find much else to indicate human relationships with teratorns or any of the other extinct vultures, or even with living vulture species that used to be more cosmopolitan. Even in western North America, which has long been a focus of archaeological study, no bones of the California Condor have been found intermixed with human artifacts outside of the species' historic range in California and Oregon.<sup>[5]</sup> The *only* remains of any extinct vulture that have been found in definite association with Amerindian artifacts are a single bone, a humerus, of an Occidental Vulture discovered in an approximately 8,000 year-old garbage dump at the Five Mile Rapids site in Oregon,<sup>[6]</sup> and the circumstances surrounding that fossil are well worth a brief digression.



The Amerindian societies of the Pacific Northwest, in what is now Washington, Oregon, and British Columbia, have become famous for the relatively luxurious lifestyles led by their inhabitants, who lived in beautiful surroundings with an equable (though rainy) climate and an incredible abundance of food. Not coincidentally, this area was also one of the California Condor's post-ice age strongholds. Condor bones have been found in a number of dumps along the lower Columbia River in Oregon, some of them thousands of years old and all dating to before European settlement. There is tantalizing evidence that these Columbian California Condors may have depended on human activities for food to some extent. One of the Columbia River sites, known as Five Mile Rapids, contains vast numbers of bird bones from dated to between 10,000 and 7,500 years Before Present (BP). Most of these bones belonged to carnivorous birds; including Condors, which make up about 10% of the remains. The humans who lived at Five Mile Rapids apparently dwelt there in order to partake of the huge numbers of salmon that lived in the river, and especially of the salmon that died nearby after spawning. This was also what attracted the birds, which could feed on stranded salmon as well as upon fish that humans caught and discarded for one reason or another.

With its abundant salmon and seafood, the Pacific Northwest was one of the few parts of the pre-Columbian New World where humans had a surfeit of animal protein, and there's no reason why vultures couldn't also have taken advantage of that scarce resource. Apparently they did; in the early 19th century, white travelers to the Columbia River area reported seeing the Condor "to a distance of five hundred miles" (805 km) from the mouth of the river, especially in springtime, "at which season it feeds on the dead salmon that are thrown upon the shores in great numbers." The Condors were also commonly seen "near the Indian villages, being attracted by the offal of the fish thrown around their habitations," though even these birds were "so shy as not to allow an approach to within a hundred yards, unless by stratagem."<sup>[7]</sup> Several

archaeological sites in northern and central California that were once occupied by Amerindians show evidence of similarly huge numbers of fish caught by humans; it seems that for many centuries after ice age, the west coast of North America was rife with "condor cafeterias," where the California Condors could find fairly dependable sources of food.<sup>[8]</sup> It does seem plausible that these areas served as refuges for vultures through the hard, lean times of the Late Pleistocene and early Holocene; it's even been hypothesized that all modern California Condors are descended from an anatomically distinct subtype that originally lived only in the Pacific Northwest.<sup>[9]</sup> It's also very suggestive that the Occidental Vulture apparently survived around Five Mile Rapids, if nowhere else, for some 2,000 years after it either died out or was replaced by the Black Vulture elsewhere in North America.

Fascinating though that vulture's lone post-Pleistocene fossil is, it remains an anomaly; the fossil evidence everywhere else suggests that the extinct vultures never long survived the arrival of humanity; not in North America, not in South America, and not in Cuba, where the last Cuban Condors vanished not long after the first Amerindians set foot on its shores. The surviving species of



vulture awakened to a drastically changed world, in which the old rules and relationships no longer held sway. Some adapted better than others, and thrived in the new situation of the New World. One vulture, the Turkey Vulture, experienced a spectacular increase in both numbers and range. Small, not particularly sociable, and unaggressive, these birds were near the bottom of the scavengers' hierarchy during the Pleistocene; but during the Holocene, there no longer was a scavengers' hierarchy in many areas, since there no longer were any significant scavengers. With the wave of extinctions that came with humanity, the New World had suddenly been emptied of most of its biggest, fiercest, strongest animals. Many of these had been entirely dependent on other big, fierce, strong animals for survival, and so their ecological niches vanished with the last days of the ice age; but not all of the empty niches vanished. Those that remained were available to any creatures with the will and ability to claim them.



Given these prehistoric events, it would be expected that the pre-Columbian vulture community of the Americas was vastly different from any in the Old World, and so it was. First, there were fewer species of vulture in the New World; just seven (excluding the Occidental Vulture), compared to 16 in the Old World. After the Pleistocene extinctions, the only New World ecosystems that harbored anything like an intact vulture guild were the tropical forests of the Amazon basin and Central America. Surprisingly, it seems that the New World vultures with the most extensive modern ranges, the Turkey and Black, were *less* widespread in the pre-Columbian era, especially in northeastern North America. Contrariwise, Andean Condors probably were more commonly seen outside of the high Andes, where their present-day strongholds lie; and along with many other animals that are thought of today as exclusively Mesoamerican, King Vultures inhabited areas north of the Rio Grande, as we'll see [in Chapter 8](#).

By and large, though, the New World vulture community that settled into place with the beginning of the Holocene wasn't very different from that which would greet the ships of 16th-century European settlers. Decimated though they were by the extinctions, the vultures of the Americas still offered incomparable wonders to the people who had come to share their home. They had giants among them: the California Condor and Andean Condor, which were now the largest vultures in the world, and which dwarfed other birds into near-insignificance when their massive forms were seen overhead. They had the King Vulture, a bird that can be described as a carnival of color in motion and that contributed much to the visual richness of Mesoamerican culture. They had the Black Vulture, a gregarious model of adaptability that would rapidly take steps to form



an association with humanity which would allow it to prosper. They had the Lesser and Greater Yellow-headed Vultures, birds that remained largely ignored by science until the mid-20th century, by which time their beauty and faultless flight had already been imprinted on the minds of forest-dwelling Amerindians for millennia. And they had the Turkey Vulture, whose bald red head and silvered wings could be seen (and spoken of) virtually anywhere.

The Turkey Vulture had few rivals for the title of the New World's most-often-talked-about bird. During the Holocene, many parts of the Americas that had previously been prime vulture habitat and had harbored many vulture species were now inhabited only by the Turkey Vulture, meaning that it came to hold an unchallenged place of prominence in the mythology of the people who shared its surroundings. Among the Piman people of southwestern North America, Turkey Vulture (typically called "Buzzard" in English translations of their stories) and the omnipresent Coyote were two of the most important beings in the world. Together, the disparate characters comprised a microcosm of the world, and especially of human nature;<sup>[10]</sup> an Amerindian yin and yang, if you will. Whereas Coyote was an impulsive, wild extrovert, Buzzard was introspective, methodical, and cautious, so much so that he would typically try something new only after everyone else had already tried it.<sup>[11]</sup> Tales were, and still are, told about this unique bird everywhere from the lush forests of northeastern North America to the dry pampas of South America, and not one of the bird's characteristics is neglected by the storytellers. Pick any noticeable feature of the Turkey Vulture - its bald head, its predilection for dead flesh, even its curiously dignified stance when standing on the ground - and an anecdote can be found to explain it.

One especially clever story, told by the Iroquois of northeastern North America, manages to explain all of those traits at one fell swoop. It seems that a long time ago, the birds of the world possessed no clothing, making them so shy that they always hid themselves from the sight of others. Eventually the birds decided that they were tired of involuntary nudity, and so they would send a messenger to the Creator to ask him for clothing. Many among them volunteered to be the messenger, but only Turkey Vulture was chosen; he was the strongest of fliers, and could fly higher than any other bird, making him the logical choice for a mission to the sun-place where the Creator lived.

The journey was a long one, and Turkey Vulture was soon out of food and hungry; so hungry that he forced himself to eat some dead fish that he spotted washed up on a shore. They smelled terrible, but he was so famished that he paid their stench no mind. His hunger satiated, he continued on to the sun-place, circling higher and higher. Drawing near to the sun, the sky turned fiery hot and burned the skin on his head, scorching it to a deep red; but finally Turkey Vulture reached the lair of the Creator. The Creator welcomed Turkey Vulture, saying that he had heard the birds' prayers and had prepared many suits of feathers for them, some so colorful and bright that it strained one's eyes to look at them. To reward Turkey Vulture for his hard journey, the Creator offered him the first choice of the suits - but the catch was that Turkey Vulture could try on each suit only once.

Turkey Vulture intended to choose the very finest suit of feathers for himself, the better to remind everyone else that it had been *he* who was responsible for bringing clothing to the birds. He tried on suit after suit, discarding this one because it wasn't bright enough and that one because it contained too much red, one because it was too dark and another because the feathers were too long. No suit seemed quite right for him, and the last was the worst of all. All of the other suits had at least fit well, but this one was far too small for him. Pulling and straining, Turkey Vulture finally managed to squeeze into it; but the fit was so tight that his legs, neck, and head were left uncovered. Worse still,

the feathers were of no color but a dirty dark brown; hardly a fitting costume for the bringer of clothing to all of the birds.

But this suit also happened to be the last one remaining in the Creator's lair, and the Creator told Turkey Vulture that it would have to be his, like it or not. He still wears the suit to this day. Although ignorant people mock the way he looks in his ill-fitting feathers, he proudly remembers that he was the only bird who could make the journey to the Creator; and he still circles high in the sky, closer to the sun-place than any other bird. And, of course, he still eats dead things, having acquired a taste for them on his long-ago journey.<sup>[12]</sup>

Other tribes held that the Turkey Vulture bore a large part of the responsibility for the modern shape of the world. The Yuchi people, originally of the Appalachian Mountains of eastern North America, held that all of the land was originally mud, and so Yah-tee, the Turkey Vulture, was given the task of spreading out the waterlogged soil and allowing it to dry. He did so by stretching out his massive wings and using them to press the soil down; but the mud took so long to dry that Yah-tee grew weary of holding his wings in such a rigid, cruel stretch. Eventually, he couldn't stand the pain any longer, and he let himself flap his wings. The flapping harrowed the mud in some places and piled it up in others, and there it dried, forming the hills and valleys of the modern land.<sup>[13]</sup> The neighboring Cherokee people also believe that the Turkey Vulture created the mountains; but when the other creatures saw the enthusiasm and vigor with which he remolded the land, they became afraid that he would turn the whole world into one vast mountain range. They called him back, and bade him to stop in time to leave some flat places; but the land of the Cherokee is still full of mountains, thanks to Turkey Vulture's overeager exertions.<sup>[14]</sup>

The Turkey Vulture's powers of flight were the stuff of legends. One told by the Maya was a tale of a great flood that covered the entire world, not unlike the biblical story of the deluge; except that, instead of being saved in an ark, the animals found refuge in the one house that remained above the roiling waters. The flood lasted for a long time, but gradually the waters began to recede. As the water fell away from the high house, two birds were sent to check on the condition of the world. One, the Ho ch'ok or trumpet bird, scouted all around the horizon but failed to find any land. The other, Usmiq the Turkey Vulture, quickly found a newly uncovered hill strewn with vast numbers of dead and rotting animals, the victims of the flood. Forgetting his mission, Usmiq landed on the hilltop and devoured great chunks of the carcasses until his appetite was finally satiated. Returning to the house to report on what he had seen, the other animals wouldn't let him in; he smelled too strongly of rotten meat to be admitted to their presence. Knowing from the stench that Usmiq had flouted his task just for the sake of a meal, his fellow creatures decided to penalize him with a punishment that fit the crime. And so, because of his irresponsibility, Usmiq was condemned to eat only dead animals for all time, and to clean the world of whatever stank and rotted. Since that time, Usmiq has been known to the Maya as The Bird Who Cleans the World.<sup>[15]</sup>

Turkey Vulture was a rather more reliable figure to the Hopis of southwestern North America, who say that he brought fire to them when no one else was up to the task. There was a time when the Hopis had no fire, and were often left cold and miserable because of it. Then they discovered that far to the east, there were people who possessed fire. A Hopi council decided that fire must be stolen from these people; but no human could possibly carry out the theft over such a great distance. The task would have to be appointed to someone who could make a long journey and steal the flames with skill and stealth. Owl, Gopher, and even Coyote, the paragon of thieves, all tried and failed to take the fire. Learning of the failures, the Hopis decided that their only hope lay in a big bird, someone who could take a firebrand from the fire people, carry it aloft, and drop it down to them, even if it was



singeing its bearer as he carried it. And so the Hopis approached Turkey Vulture; because, as the Hopi chief put it, "He's always circling the sky and therefore mighty and strong. He can probably do the feat." Turkey Vulture agreed to try, although he thought that the fire people might kill him in the attempt. He flew to the east, with the best wishes of the Hopis.

The day had turned to dusk by the time Turkey Vulture reached the encampment of the fire people, and many fires were already lit. One was smoldering, but not quite ablaze yet; upon seeing it, Turkey Vulture hurried forward, snatched a burning stick from it, and flew away. A strong breeze blew up as he flew westward, fanning the stick and turning it into a flaming torch. The fire spread to the plumes on Turkey Vulture's head; as he neared the land of the Hopis, the flames engulfed him, and he fell to the ground, still clutching the precious firebrand. The Hopis had witnessed all of this, and rushed forward to where Turkey Vulture fell. They rubbed his head to put out the flames, which were soon smothered; but the Hopis rubbed Turkey Vulture's head so hard that they inadvertently pulled out all of its feathers. The firebrand was still burning, and all of the Hopis took fire from it. For the first time, they could cook their meals and keep warm at night. As a token of thanks to the fire-bringer, the Hopis offered to Turkey Vulture that he could clean up all of their leftovers, so that it wouldn't be so filthy around their camps anymore. And he is still doing just that, feeding on rotten and discarded things and keeping the earth clean.<sup>[16]</sup>

By way of contrast, some cultures in South America credited vultures with keeping fire to themselves; for humans to gain fire, it had to be stolen from the vultures. Many Brazilian tribes hold that fire was first stolen from vultures by someone, usually a cultural hero, who plays dead and makes themselves smell like rotting flesh in order to attract the birds. The vultures soon gather around them in anticipation of a feast; but just as the birds have lit their cooking fire, the seemingly dead hero arises, grabs a glowing ember (sometimes tossing it into the mouth of a toad for safekeeping), and scares the vultures away.<sup>[17]</sup> Since then, people have had fire, although the reason why vultures no longer light fires for themselves seems to be unexplained. However, the Bororo tribe explain in an unrelated story that the *Urubus*, the King Vultures, scorn to use cooking fires because they prefer to feed only on raw flesh, and not on that which has been cooked.<sup>[18]</sup>

Another explanation of this vulturine dislike for fires might be that the birds originally lost their head feathers to flame; certainly, this is a very common motif of Amerindian stories. The Bororo tell that after the apparent death of his brother Meri (the sun), Ari (the moon) wandered into a village, whose inhabitants treated him with a shocking lack of hospitality. Meri, not dead after all, rescued his brother after arriving in the company of a flock of macaws, and took revenge on the village by sending powerful winds and rainstorms that battered down all of the villagers' buildings and extinguished their fires. Forced to swim across a river to beg for fire from Meri and Ari, the villagers paid a high price for it. Meri granted them firebrands, tying them into the villagers' hair so that the fire won't be extinguished when they swam back; but he purposely made knots in the brands, in order to punish the villagers who had so unkindly tormented his brother. These unfortunate villagers suffered scorched heads in their journey across the river, and became bald-headed birds: spoonbills, ibises, and storks, as well as vultures.<sup>[19]</sup>

People of the North American Pueblo tribe say that Turkey Vulture and his companion in baldpatedness, the Wild Turkey, lost their head feathers in pursuit of an extremely formidable task. Early in the world's history, the sun fell down to the earth and would no longer light the skies. Something had to be done; it had to be raised back into the sky, or the earth would suffer perpetual night. Wild Turkey tried to do it first. He pushed the flaming globe into the heavens with his head, as high as he could reach; but he had to stop when his feathers were singed off, and the sun was still not

high enough. Turkey Vulture made the next attempt. Cleverer and stronger than Wild Turkey, he pushed the sun higher still; and though his feathers were lost as well, the most powerful of medicine men persisted, until he had placed the sun high in the sky where it rests today.<sup>[20]</sup>

The Maya believed that Black Vultures also owed their baldness to the sun; but this was because of gluttony on their part, not heroism. Long ago, Chom the Black Vulture was a beautiful bird with spotless white feathers covering his entire body (including his head), and he refused to eat anything but the cleanest, freshest meat. One day, the Mayan nobles threw a festival for their ruler, who resided in the Temple of the Warriors. In his honor, they laid out a vast feast, consisting of every delicacy in the land; then the nobles left for the temple shrine to escort the ruler back to the banquet. As the nobles left, Chom and his family were soaring high in the sky, searching for food. They saw the great feast laid out below them, with not a soul in sight, and immediately swooped down to it. The vultures first nibbled at the food, then gulped it down; it was so delicious that they devoured every last dish. Returning from the temple, the nobles were shocked to see that all that was left of their lavish banquet were dropping-spattered tables covered with scraps and bones - and the white vultures responsible were still there, gobbling down the last few tidbits. The angry nobles chased the birds away, throwing stones at them but failing to hit any; the vultures flew off too quickly to be hit or caught. Determined to have revenge on the vultures, the king ordered his wise men to find a way to trap them.

After a few days of study, the wise men concocted a plan. A banquet just as lavish as the first was laid out in the same spot, and left unattended. But this time, the king's most skillful hunters and wildest witch doctors were hiding behind nearby columns, each with a small container in his hands. Chom and his family soon happened across the second unattended great feast they had seen in just a few days; unable to believe their luck, they quickly rushed down to it and began eating. They were so absorbed in their food that they completely forgot about how they had been chased away from the first banquet. Suddenly, the hunters and witch doctors leapt out from behind the columns, wrenched open their containers, and threw black powders and strange herbs onto the vultures. Chom screeched at his family, and they sprang from the tables and flapped into the sky. Intending to hide, they flew into a rain cloud; but in the moist depths of the cloud, rain soaked the black powder into their white feathers, turning them as dark as night. Panicked by this, the vultures flew higher and higher; so high that the sun scorched the feathers from their heads and necks, and burned the black powder into their plumage - permanently. And, as further punishment for their foolish gluttony, the Great Spirit decreed that they would never eat fresh meat again. Afterwards, the Maya knew Chom and his family only as black birds with bald heads, who lived on carrion as well as the garbage and leavings from their own tables.<sup>[21]</sup>

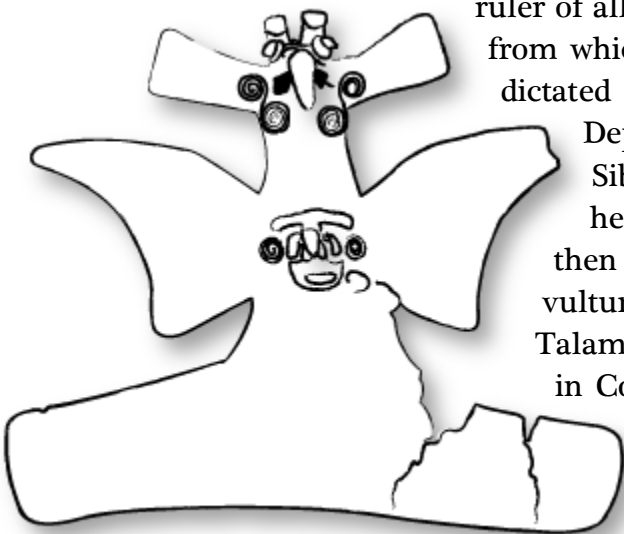
Powerful in the ways of destruction and creation, vultures weren't merely passive participants in the how-things-came-to-be game; they could also determine what others would become. The Tacana people of Bolivia tell of the fate that befell a woman who foolishly caught the parasites that infested the hide of the great tapir, the largest mammal of South America, and ate them. Presumably the tapir wasn't displeased by the woman's actions; but the *schie* bird, which depended on the tapir's vermin for food, was furious that its gastronomic turf had been encroached upon. It complained about this to the vulture, who promised to take revenge on the woman on behalf of the *schie* bird. After locating the woman, the vulture swooped over her and spattered her with his droppings, until she was so covered with excrement that the weight forced her to double over, leaving her almost unable to walk. The vulture then threw the hapless lady to the ground, tore out her hair, and stuck it all over her body, where it was held in place by his droppings. He similarly attached a young snake's tail to her

rear end, and shrank her to a much smaller size; then chewed a root and spat it onto the woman's "fur" in order to dye it yellow. Finally, he stuck a palm bud onto the woman's face. The wronged *schie* bird was avenged; the inconsiderate vermin thief was now an Opossum. The vulture informed the creature that she would now only give birth to ticks, most of which would be eaten by the *schie* bird; the rest would grow up to be Opossums like her.<sup>[22]</sup>

The powerful magic of vultures could inadvertently cause great harm to anyone foolish enough to attack the birds, disturb their earthly remains, or even to anyone who haplessly consumed a vulture's food. Among the Piman of southwestern North America, it was believed that a person who did any of these things would be afflicted with "vulture sickness," a dire condition that could afflict both the offender and their offspring. Some Piman still tell a story in which a hungry pregnant woman ate a few parts of a dead cow which had already had its eyes pecked out by a Turkey Vulture. As a direct result of her transgression, her son was born not only blind, but *without eyes*, functional or otherwise. It was a rash person indeed who even touched a carcass that had already been claimed by a vulture. Unlike other birds such as hawks and eagles, the Piman never kept vultures in captivity in order to supply feathers for ritual use. Such was the frightful power of the carrion birds that they collected vulture feathers only by gathering those that had fallen from roosting birds, and were extremely cautious even while doing that.<sup>[23]</sup> Humans could also use the powers of vultures to inflict ill deeds upon other people. Among the Hookooeko of northern California, a witch who wished to harm or kill someone needed only to gain possession of a *to'kah*, the hollow wing bone of a Turkey Vulture, move upwind of the person to whom they felt malice, and then "blow harm" through the bone. (A skilled witch with just the right bone could do this from as far as two miles (3.2 km) away.) If this was done correctly, it was said that the witch's victim would first suffer nightmares and feelings of loneliness, then would lose their mind, and eventually would die in misery.<sup>[24]</sup>

Vulturine power didn't always have such an unfortunate outcome for those on the receiving end of it; just ask the Talamancan tribes of Costa Rica.<sup>[25]</sup> These people worshipped many deities who ruled over various elements of existence, such as the spirits of water and the god of the animals. The ruler of all of these spirits was Sibū, who had brought to the land the seeds from which the Talamancan sprouted at the beginning of time, and had dictated the teaching of agriculture, song, and dance to the tribes.<sup>[26]</sup>

Depending on whose interpretations one chooses to believe, either Sibū himself taught these things while in the form of a vulture; or he taught them to the King Vulture, chief of the vultures, who then returned to earth and introduced them to people. Sibū (or his vulturine messenger) was the most popular cult image of the Talamancan, and was commonly depicted in the pendants ([left](#)) found in Costa Rican archaeological digs, highly stylized works of beaten gold that were modeled after vultures. These pendants, used as gifts and items of exchange, are disc-shaped with heavy, hooked bills, and wings outstretched in the "sunning" pose typical of vultures.<sup>[27]</sup>

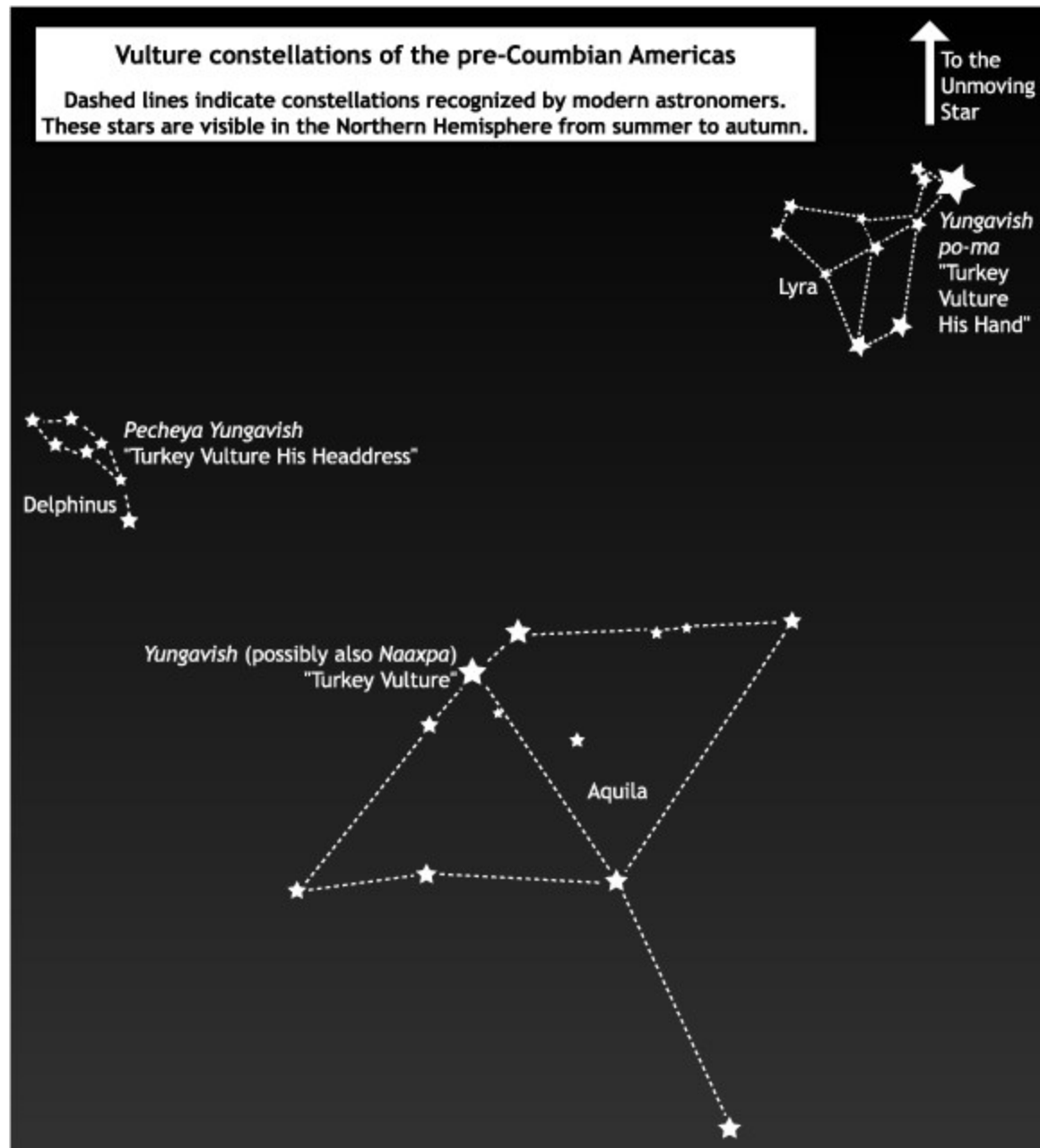


As some of the most conspicuous dwellers of the sky, vultures were frequently credited with bringing a gift to humans that was no less precious than those borne by Sibū; namely, the light of the world. Many origin myths of Central and South America tell of heroes living at the beginning of time who hid under animal skins in order to attract the vultures responsible for keeping the sun, or moon, or fire alight. The Maya version of this story has the hero, who would later become the sun, riding on



a vulture to retrieve the moon (his wife), who had eloped with the King Vulture.<sup>[28]</sup> The Chibcha of the northern Andes say that in the beginning of time, all light was imprisoned in a great house by Chiminigagua, the supreme god. Chiminigagua created “huge black birds,” Andean Condors, and gave them the light, instructing them to carry it in their bills and fly around with it until the entire world had been illuminated.<sup>[29]</sup> Sometimes the Chibcha sacrificed children on mountaintops as offerings to the sun; it was said that the sun would consume their bodies after the Chibcha had left,<sup>[30]</sup> although it was far more likely that the “huge black birds” of the legend would insist upon that task. The Yokut of California believed that the vast wings of their native Condors were responsible for solar and lunar eclipses; some even asserted that when the moon was occulted by the shadow of the earth, it was actually devoured by a Condor.<sup>[31]</sup>

Lesser heavenly bodies could also be honored with vulturine incarnations. Many tribes of southwestern North America placed the Turkey Vulture among the stars. The Luiseño of the Southern California coast believed that the brightest stars were chiefs, and the oldest and most important of these was *Yungavish*, the Turkey Vulture (known today as Altair, the most luminous star of Aquila). Vega of the constellation Lyra was *Yungavish po-ma*, Turkey Vulture His Hand; and another nearby star or (more likely) the constellation Delphinus was *Pecheya Yungavish*, Turkey Vulture His Headdress.<sup>[32]</sup> Similar identification of Altair with the Turkey Vulture prevailed among the Yokut of the San Joaquin Valley;<sup>[33]</sup> and also among the Tipai and Ipai tribes of southern and Baja California, whose visualization of Sair, the Turkey Vulture star, was depicted in their ground paintings.<sup>[34]</sup> The Seri tribe of the Gulf of California maintained that *Naapxa*, the Turkey Vulture, was to be seen in the night sky during December, the month of *naapxa yaa* (Turkey Vulture Its-Path). The stellar identity of *Naapxa*



is unknown, but it might well be Altair, which can be seen in the western sky on December evenings.<sup>[35]</sup> The Piman told a story of a flood which swept the whole world, during which each of the four primordial beings had to find a way to survive. Nui, the Turkey Vulture, told everyone that it didn't matter to him even if the floodwaters rose all the way to the sky. The waters did rise to the sky, with Nui floating in the air above them; finally, when it seemed he could fly no higher, he pulled down a star and fled through the hole, leaving the raging water far below. That star, known to the Piman as the Unmoving Star and to astronomers as Polaris, was later replaced by Nui when he returned from the heavens after the flood receded.<sup>[36]</sup>

Rather surprisingly, stellar identities were harder to come by for the gigantic condors. One of the only recorded such beliefs occurred among the Chumash of Southern California and adjacent areas, who correlated their supernatural being Holhol (also known as Xolxol) with the California Condor, and with the planet Mars. Apparently, the condor's reddish head and ability to move at speed echoed the appearance of Mars, which also has a distinct reddish tinge and appears to move very quickly relative to the other celestial objects. Holhol, dressed to the nines in a feather cloak or suit, was said to be speedy in his own right, and an excellent sorcerer with the power to locate lost people and things. Holhol was often called upon to locate Slo'w, the Golden Eagle, the manifestation of the planet Venus, who was usually to be found out gaming with Sky Coyote and Morning Star. Holhol and Slo'w, together with Turkey Vulture, were the eaters of the dead, who removed foulness from the world.<sup>[37]</sup>

The Chumash and other southwestern tribes had among them persons known as "money finders," who specialized in the art of finding lost or misplaced valuables. When going about their work, the money finders wore full-length cloaks made of Condor feathers (just like that of Holhol), the better to make use of the California Condor's unsurpassable powers of search and discovery.<sup>[38]</sup> Condors and other vultures could both see things that remained hidden to humans, and find things that would remain lost to others. This is why there was a common belief among the tribes of southwestern North America (which curiously parallels similar beliefs in the comparably arid Near East of the Old World) that rocks found in vulture nests, called "vulture stones," had magical powers. Among the Jicarilla Apache, it was said that a man who took a stone from a Turkey Vulture's nest and wore it during sports games would be sure to win, because the stone would curse his opponent with fatigue and disinterest. These beliefs probably originated because the Vultures' "nests" – which, in this region, are usually just potholes in cliffsides – were so unobtrusive and hard to find; therefore, a stone obtained from such a nest would be able to conceal anyone or anything.<sup>[39]</sup>

The process of obtaining one of these valuable stones was rather complicated. First, one egg had to be stolen from the Vulture's nest, hard-boiled, and then returned, all without the person responsible being seen by the Vulture. It was said that after the mother Vulture returned to brood her eggs, she would discover that something was amiss with one of them, and would fly off to the mountains. She would return to the nest with a stone and place it against the hard-boiled egg, which would then hatch immediately (!). When the Vulture again left the nest, the stone could be taken and its powers used by the taker.<sup>[40]</sup> Specifically, these stones allowed any humans who possessed them to find hidden or far-off objects, just as vultures could find hidden meat or appear at a carcass from a sky that, moments before, was completely empty. A similar Chumash belief held that if a man stole a Turkey Vulture's eggs, the bird used its supernatural powers to favor the thief in hopes of getting its eggs back. For twelve years the thief would have all the mystic powers of a Turkey Vulture; but at the end of those twelve years, he would die immediately.<sup>[41]</sup>

Other Amerindians thought that the vultures' black wings could hide things as well as find them. In midwestern North America, Pawnee tribes kept stocks of Turkey Vulture feathers in case of attacks by enemies. If an enemy force marauded near a Pawnee encampment, the Pawnee were to place the feathers in their hair in a circular pattern, while whatever Pawnee warriors were present would stand in a circle around the encampment. If this was done properly, it was believed that clouds of dust would rise from the ground to shroud the Pawnee from their foes.<sup>[42]</sup> In the Americas, vultures are commonly seen in the early morning hours perched in trees with their great wings spread, patiently waiting for the sun to remove the night's dew from their feathers and warm their bodies before they begin searching for the day's food. In the Mayas' sacred book, the *Popol Vuh*, it is told how this vulturine practice began. For reasons far too complex to explain here, the principal god of the Maya, Hunahpú, had his own head cut off and hung in a ballgame court. Various soothsayers and animals strove to make him a false head before the word of his decapitation got out; but, as they were doing so, the sky began to lighten. If it dawned just then, the ruse of the false head would be revealed for all to see; and so Vulture was told to make it dark again, with the words, "Make it dark again, old one!" He did just that, darkening the sky by spreading his vast wings. And that was why the Maya said, "now the vulture has darkened it," when the sky became dimmer just before sunrise.<sup>[43]</sup> Apparently the Mayan word for this predawn darkness, *vuch*, was also their word for the Turkey Vulture, as the bird represented a handy example with which to suggest an immaterial thing.

Many New World legends focused on the vultures' remarkable prowess in flight. As the highest-flying of birds, vultures inhabited a world far above that known to humans; their lofty heights were usually unattainable by living people. Some Amerindians (particularly those of the Caribbean) believed that people once lived in the sky world in company with the birds, and that they fell to earth through some mishap. The Waiwai of Guyana hold that there are five levels to the universe, with one creature assigned to represent each level. In order from lowest to highest, these are: cicada people, humans, hawk people, spirits, and vulture people. The souls of ill humans are said to have strayed "high up, in the house of the vulture people," and they must be brought back by a shaman, who seeks the assistance of the spirits of the fourth level to guide them back to the lowly land of humans.<sup>[44]</sup>

Tellers of folktales sometimes fancied that humans and other earthbound animals could partake of the vultures' lofty views of the world, if only the vultures agreed to bear riders. The Menomini of the Great Lakes area tell of such an encounter between Ma'nabus, their cultural hero, and Turkey Vulture. Ma'nabus was watching Turkey Vulture flying in the heavens one day and wondered, as he often had, how the bird could fly at such a height with such ease. Wanting to learn Turkey Vulture's secret, Ma'nabus called out, "Little brother, won't you come down?" Turkey Vulture at first ignored this entreaty; but Ma'nabus called several more times, and finally the vulture swooped down and hovered nearby. "What do you want of me?" the bird asked. Ma'nabus told Turkey Vulture how he admired his flying, and asked if he could travel with him to see the world. "Impossible," said Turkey Vulture, "You are too big. If you were small perhaps I could manage to take you along." Ma'nabus assured him that was no problem, because he could make himself any size that he wished; and he did, shrinking himself to the size of a squirrel. "Is that small enough?" Ma'nabus asked. Turkey Vulture affirmed that it was; and so he perched on the ground and ordered Ma'nabus to climb onto his back and hang on tight.

With the mini-Ma'nabus as his mount, Turkey Vulture took off, flew into a thermal, and circled higher and higher. Then he soared about, with his strange passenger gasping in awe and telling him what a great treat it was for him to be able to see so far. Turkey Vulture and Ma'nabus flew all around the world like this, until at length Turkey Vulture began to tire. He asked Ma'nabus when the flight



was to stop. "Oh, let's keep on, little brother," Ma'nabus crowed. "I like it so much." Turkey Vulture continued flying, but he was becoming fatigued; and yet Ma'nabus kept insisting that he fly on. Finally, Turkey Vulture had had enough, and thought of a way to lose his unwelcome passenger: he tilted his wings until one pointed skyward and one pointed towards the earth. This alarmed Ma'nabus, who shouted at his mount to be careful, or he would fall off. Heedless of his terror, Turkey Vulture then turned a complete somersault in the sky, shaking his feathers all the while; and Ma'nabus lost his grip and fell, screaming, back to earth.

Naturally, he was rendered unconscious by the fall. When he came to, he found himself staring at a pair of buttocks. These turned out to be his own; the impact had broken his back so badly that his own butt was like a pillow for him. Ma'nabus (being a cultural hero) was soon cured of this painful condition; but he still needed to avenge himself on the vulture who had so callously dropped him from the sky. After thinking for a time, he hit on a plan; he would become a big, fat Elk, lay on a



hilltop as though he were dead, and wait for Turkey Vulture to arrive. He did just that, and a great many scavenging animals and birds came; but no Turkey Vulture. Several days later, the scavengers had devoured the entire upper part of the Elk's body, leaving the hindquarters untouched, and still Turkey Vulture hadn't come. Finally, the erstwhile passenger-carrier did arrive; but he was suspicious about the Elk, for he well knew of the shape-shifting powers of Ma'nabus. Eventually, hunger overtook caution, and he alighted near the Elk and began pecking at its hindquarters. The rectum gaped invitingly; Turkey Vulture stuck his bill into it and nibbled at the fat. It was delicious, and he reached in farther and farther, until his entire head was inside the Elk. Just then, the sphincter snapped shut, grasping his neck firmly and trapping his head.

Turkey Vulture immediately knew that he had been tricked and trapped by Ma'nabus, and began pleading for mercy. "You had no pity for me when you shook me off," said Ma'nabus/half-devoured Elk, "And I'll have no pity on you now, but perhaps I may after awhile." He then walked off, with the trapped vulture dangling between his buttocks. Turkey Vulture pled incessantly to be set free; eventually Ma'nabus took him out, looked at him, decided that he hadn't been punished enough, and shoved the bird back up his own ass. After a time, Turkey Vulture's pleadings again became so insistent that Ma'nabus again took him out and looked at him; and this time, all of the feathers had rotted right off of the bird's head! "Well," said Ma'nabus, at last setting his anal captive free, "That's the way you will look, and stink, forever, because you were so mean to me."<sup>[45]</sup>

Such tales of vultures losing their feathers by entrapping their heads up someone's (or something's) rectum were very popular and widespread in North America, as earthy and grotesque stories often are. They're found as far north as Canada and as far south as Guatemala, and are thought to have persisted in Amerindian folklore for at least 1,500 years.<sup>[46]</sup> The animal in whose digestive tract the vulture loses its feathers varies from one story to another; sometimes deer, at others Moose or Buffalo, or (due to post-Columbian influence) Mules or Horses.<sup>[47]</sup> One tale from the Pacific Northwest even depicts the vulture trapped inside of a whale, losing its feathers from the digestive juices of the giant sea mammal.<sup>[48]</sup>

It has been claimed that the dearth of riding animals among the pre-Columbian Amerindians can be chalked up to a psychological inability on their part to recognize the potential of a man-carrying beast. This is quite untrue, at least regarding birds; tales that describe humans or other animals hitching aerial rides with vultures are common all across the Americas. As in the Old World, there were many stories told in the New World of people playing dead in order to attract vultures; either to catch them or to be caught *by* them, and then fly with them. Unlike in the Old World, however, Amerindian stories in which humans and other creatures fly with vultures *always* have these aeronauts riding upon the vultures' backs, rather than being carried aloft in their talons. This discrepancy is notable because it demonstrates that one of the primary differences between Old and New World vulture - the former have prehensile feet, the latter don't - was commonly understood by the people familiar with them. As mentioned [in Chapter 1](#), it's physically impossible for New World vultures to carry anything in their feet, and anecdotes of them doing so were apparently unknown until settlers from the Old World began arriving and imposing their own beliefs about vultures.

Even a comparatively isolated culture like the Bororo of the Amazon basin's tropical savannas told such a tale. The story goes that a youth named Toribugu had been stranded on a high mountain after climbing there, with no apparent way to descend. Toribugu fashioned a crude bow and arrows, and shot many of the small lizards that inhabited the mountain. He tied the dead lizards to his body, where they soon began to rot and emit an awful stench, and lay down to await the vultures. Toribugu didn't have long to wait. First one vulture arrived, then many more, circling above and then landing near the lizard-encrusted youth. Cautiously, one of the vultures pecked at him, but he inadvertently twitched at the pain, and startled the birds away. They crept back, pecked again, and were again surprised to find that their prey was still alive. A third time the birds pecked, and shied away when Toribugu moved; but then a particularly beautiful vulture, Xiwaje,<sup>[49]</sup> pecked him, and this time Toribugu remained still. Satisfied that the youth was dead, the vulture began pecking at his buttocks; whereupon Toribugu grabbed the vulture and demanded that it descend to the grasslands far below, with him sitting on its back. Xiwaje agreed; with Toribugu sitting on it, it flew down to the grass, then ascended again, then descended again. On the third descent, Toribugu jumped from the vulture, landing safely in the grass. Still holding the vulture, he broke both of its wings, causing it to cry out in pain; but it is because of its broken-yet-functional wings that Xiwaje today looks so beautiful and different from its fellows. Back on the ground, Toribugu had further adventures, although he experienced some digestive difficulties due to the damage that Xiwaje had done to his butt.<sup>[50]</sup>

The Wichita people of the North American Midwest tell that one night, long ago, a woman was watching the stars in the night sky. Many of the stars were only barely visible against the inky blackness, but some were very, very bright. As her mind drifted, she imagined the stars as people, and pictured the dim stars as elderly and the bright stars as young, handsome men. She noticed one particularly beautiful star, twinkling with a bluish-white light; she pointed to it and said aloud, "That star shines so brightly, it must have be one luscious stud. I wish I could have him for my husband."



As she slept that night, she dreamed that she was married to a gorgeous man, who looked just like she had imagined the star to be. When she awoke the next morning, she was in an unfamiliar place – a decrepit looking hut. A very old and withered man sat, tending a fire; when he noticed her awake, he turned to her and said, “What do you think of the brightest star in the sky now, young lady? I am it; the brightest stars are also the oldest ones. Since you wished it, I am now your husband, and you my wife; we will live together in the sky forever.”

The woman saw no way out of the arrangement, and so she lived with the star for a long time, bearing his attentions with gritted teeth. Some time later, she noticed a large, flat stone lying on the ground outside of the star’s house. The Star noticed her looking at it, and warned her never to touch it; so, needless to say, she did just that the very next time he was away. After much straining, she managed to push the rock over, and found herself looking through a hold in the ground at the Earth, so far below her that it was but a blue prick of light. Although she trembled at the sight, she knew that she had to get back there, somehow. She replaced the stone and began pondering her escape plan; eventually she decided that she would climb down. She gathered bunches of soapweed, and braided them together to make a long, thick rope. It took many, many days, and she always had to hide the rope when the Star was around; but finally she thought the rope was just long enough to reach down to Earth. The next time the old Star was absent, she vowed, she would make her escape.

When that time came, she tied one end of the rope to the heavy stone, knowing that it was too large to fall through the hole. She then dropped the coiled rope into the hole, and started to climb down it. No one knows how long it took her to descend to Earth; some say days, some say weeks, but descend she did – right to the end of the rope. But when she reached it, she cursed herself; the rope only reached to the canopies of the highest trees! The ground was still far below her; all that she could do was hang there, swaying in the breeze, hoping that some kind of help would arrive.

That evening, a Turkey Vulture perched to fly by. It circled over her a few times, then passed close by and inquired if she was still alive. “Of course I am!” she screeched. “Now help me down!” The Vulture, though disappointed at missing a prospective meal, wasn’t one to abandon a distressed damsel; and so he told her to make ready to grab hold of his neck. He circled higher and higher in the sky, then sailed towards her, rocking back and forth with the wind. When he passed below her, she jumped, and managed to land on the Vulture’s back, grabbing hold of his neck to keep herself steady. Vulture flew a long with her, then finally sailed down to the ground. As she climbed off, he asked her if she knew the way





home from there. She claimed that she did, with a touch of overconfidence. Vulture didn't press the issue; but he told her that he had spotted a dead Buffalo from the air, which she would have to eat to give her enough strength for the journey. And he warned her to never make a wish upon a star again. With that, he departed; but unknown to her, Vulture watched over her as she made her way back home, making a reluctant feast of the dead Buffalo on the way.

When she arrived home, her parents scolded her, and asked her where she had been all this time. She told them everything; how she had been foolish enough not only to imagine the stars as people, but to actually wish to marry one of them, how she had dwelled in the sky, and how Vulture had saved her. And ever since then, the Wichita have dreaded to talk about the stars, or even to count them; and they never, ever wish upon a star. They know that Vulture may not be there to save them from the stellar lechers if they do.<sup>[51]</sup>

Although they are the most commonly mentioned vulture-riders in Amerindian stories, humans weren't the only creatures who were privileged to see the world from a vulture's back. The Maya tell a story of a lonely Toad who, at the end of the rainy season, was wandering about looking for a friend. His search led him to a meadow where he found a Vulture perched on the ground, taking a rest from a long but fruitless day of looking for a meal. The Toad's hopes for friendship kindled, he hopped up to the bird with long leaps, and said "Hello, good friend!" "Hello, how are you?" the Vulture replied. As the great bird seemed amiable, the Toad revealed to him that he had been looking for friends. "Would *you* like to be my friend?" the amphibian asked. "Of course I would," answered the Vulture. Upon hearing this, the Toad leapt with joy, over and over again. His search was over!

Seeing the toad's great joy at becoming airborne, even if only briefly, the Vulture thought of a way to prove the devotion of his friendship. "My good toad," he said, "I'll give you a ride into the sky, where you will see many wonders; strange places, and peculiar things that you have never imagined." The Toad was overjoyed at this, and shouted, "When can we leave, my friend?" "Right now, if you like," said the Vulture, a bit perturbed by the toad's desire for immediate gratification. "Then what are we doing still sitting on the ground?" cried the Toad. "We can't lose any more time; take me into the sky with you, hurry!" "Just a minute, my friend," said the Vulture. "I must find something to eat; that's why you found me in this meadow." The Vulture wandered around the meadow for a bit, sniffing here and there, until he found a juicy bit of carrion laying in some underbrush. It was ripe, but not *too* ripe. He quickly swallowed it and walked back to the Toad, who had been twitching with impatience all the while. "All right, friend Vulture; you found your meal, now we must go!" the Toad shouted.

With a stifled sigh, the Vulture spread his vast wings and prepared for takeoff. "Hop onto my wings, my friend, and we will take to the air together." Trembling with excitement, the Toad did so; and the Vulture first walked, then ran, until the air roared past like a hurricane. Soon, he rose from the ground, and setting his wings, circled higher and higher. He left the meadow behind, and flew over trackless forests, mighty rivers, and terrible mountains, circling over each new place several times for the benefit of his passenger.

The journey was all that the Toad could have hoped for. His big eyes opened wider and wider to take in each new wonder; his *oohs* and *aahs* trailed behind them on the wind. He could scarcely imagine what else he would see upon the wings of his friend; but then the Vulture belched, his stomach a bit upset from his recent meal. The effluvia blew backwards, directly into the toad's face. The Toad groaned at the stench, and shouted, "Good god, your breath is terrible!" The Vulture turned his head to his passenger, and inquired, "What did you say, my friend?" After stammering for a moment or two, the Toad blurted out, "I said . . . 'Good bird, your flight is wonderful!'" The Vulture thought that he had heard differently, but nevertheless he continued flying, riding the air currents

with scarcely a wingbeat. As they plunged into a cloud, the Vulture's stomach again gurgled, and discharged a noxious gas. It reached the Toad, who cried, "Bleah! Your stench is about to make me puke, you filthy buzzard!"



The Vulture was quite sure of what he had heard this time, and knew that he had been insulted. He was tempted to land and order his rude passenger to leave; but he decided to give the Toad another chance, and pretended that he hadn't quite understood. "Could you repeat that, my friend?" The Toad, not wishing to end his ride early, replied, "I said, 'Yeah! Your skill is enough to make me swoon, you fine vulture!'" And so, the Vulture kept on flying, hoping that the Toad had finally gotten it through his thick skull that friends should be accepted for what they are, not insulted - particularly when they hold one's life by a thread.

The Toad, alas, wasn't quite so astute. As the smell of digesting carrion washed over him a third time, he yelled out, "Ick! You smell like a pus-covered shit sandwich, you gross bird!" The Vulture had finally had enough. This time, he didn't bother to ask the Toad what he'd said; he had heard it all. He swooped to a standstill, miles above the earth, and with the winds roaring past them he turned to the toad on his back and said, "All right, Toad. You came looking for a true friend, and you found one; and yet you won't accept me for what I am. You'll be forever left wondering what else we could have seen together." Then he turned his bill skyward, called back, "Goodbye, ingrate," and climbed until his tail pointed right at the ground, so far below. The Toad only had time to stammer "But . . .," before he lost his precarious grip and fell to earth. And no one ever found the remains of the rude Toad, who couldn't accept a true friend for what he was.<sup>[52]</sup>

The Quechua people of the Andes tell a similarly earthy vulture-riding story, which simultaneously explains the widespread distribution of the fox *and* the origin of their agriculture. One day, there was a great banquet scheduled in the sky. Ordinarily, only sky-dwellers could attend such functions; but this time, an Andean Condor invited a Fox to come along. The Fox accepted, and the Condor told him to climb onto his back, shut his eyes, and keep them shut until they arrived at the banquet. The Fox did as he was told, and the odd pair arrived to find a stupendous amount of delicious food waiting for them. The Fox was unimaginably happy, and gorged himself on the spread. So concerned was he with his food that he paid no notice when the Condor told him it was time to return

to the earth, and so the Condor returned without him. When the Fox was satiated at last, he looked about for the Condor, but the great bird was nowhere to be found. His ride was gone! But a Fox is nothing if not clever; and, undaunted, he made a long rope out of braided grass and began to climb down from the sky with it. Halfway down the rope, a flock of parrots happened upon the odd spectacle of a Fox climbing a grass rope down from the sky, and they began to pester him. The Fox shouted back at the birds, but he only made them angry; and, using their powerful bills, they cut through his rope and sent him tumbling to earth. When he hit the ground, his innards and all of the food he had been eating splattered across the earth; a blessing in disguise for his species, as his innards then became more foxes. The food that the Fox had been eating wasn't just any common grub; it consisted of corn, squash, quinoa, and other delicious plants. Falling from the sky, the Fox had inadvertently brought these treasures to earth, where they could feed the farmers of the Andes.<sup>[53]</sup> Some Andean tribes celebrated this story in a dance, in which one dancer, the "Condor," would don a Condor skin, and the other, the "Fox," would ride upon his back until shaken off.<sup>[54]</sup>

Having the reputation of a trickster, the fox is often paired with the relatively staid vultures in South American folktales, just as North Americans paired Coyotes with vultures. In a story from the Gran Chaco plains, a fox challenges a vulture to a tree-sitting contest: whoever can last the night while perched in a tree, without seeking shelter from the cold wind, will win. During the night, the vulture quietly crawls into a nook in the tree and shelters from the wind. When the sun rises the next day, it reveals a dead and very frozen fox.<sup>[55]</sup> A very similar tale occurs in the Central Andes, except that here the fox challenges an Andean Condor to the contest, and whichever animal wins will get to eat the other. The Condor won the contest,<sup>[56]</sup> which explains why [foxes now tend to grant Condors wide berths at carcasses](#).

Such stories might make vultures seem like frivolous and inconsequential creatures; but an O'Odham story, apparently based on a distantly remembered conflict with the Apaches, makes the Turkey Vulture something of a hero. One day, the granddaughters of both Old Woman Tcukovaki (quail) and Old Woman Kwahaduk (long-legged ant) were captured by a raiding party of Apaches while they were out gathering wheat. Roadrunner brought the sad news back to the Old Women, who wept for their granddaughters. Tcukovaki said that if anyone was brave enough to go after the Apaches and bring her granddaughters back, he would then be free to marry the young quail. Coyote heard of this generous offer, and went out to rescue the quail girls; but the Apaches discovered him and killed him. He never returned. Turkey Vulture also heard of the offer, and decided to go himself. He flew higher and higher, until he could see the quail girls, far below, out gathering wheat for the Apaches. He flew down to them, spread his wings, and told the older girl to sit on his back, so that he could take her home. The younger girl was assured that he would come back for her; if the Apaches enquired as to the whereabouts of her older sister, she should tell them that the other quail had become lost while gathering wheat seeds.

Turkey Vulture and the older quail girl reached Old Woman Tcukovai without incident; but Turkey Vulture still had to go back for the younger quail. After her sister's disappearance, the Apaches kept a close watch on her and refused to let her leave their sight, except to get water. One day as she was going out for water she looked to the sky and saw Turkey Vulture, returning for her just as he said he would. He landed beside her; she dropped her water container, climbed onto his back, and away they flew back to the quail's home. A great dance was held to celebrate their safe return, and Turkey Vulture married the quail girls.<sup>[57]</sup> There's no mention of what happened to the long-legged ant girls; but then, Turkey Vulture could hardly have married *them*, so perhaps he didn't feel compelled to rescue them.



Among the Piman, one of the most pivotal events in their oral history was the battle between their Elder Brother, I'toi, and Nui, the Turkey Vulture. The tale goes that at one time Elder Brother became so obnoxious to the Piman (particularly during ceremonies that involved adolescent girls) that they decided to get rid of him; however, being mere people, none of the Piman were powerful enough to kill I'toi permanently. Were they to try, he would merely rise again and wreak untold havoc upon them; only one of the Original Beings of the Piman cosmos could do the job properly. Nui, the brave Turkey Vulture, volunteered for this dangerous task; and after a suitably impressive demonstration of his power he set about devising a way to assassinate I'toi. He decided to do so by trading places with the Sun for a day, during which he could use Sun's incomparably powerful bow to finish off Elder Brother. By shooting heat down from the heavens onto I'toi, Nui finally managed to kill him,<sup>[58]</sup> and as a gift to the people, he sent wind and rainclouds to the land of the Piman.<sup>[59]</sup>

Alas, even the mighty Nui was unable to kill the plucky Elder Brother for good. Some time

later, I'toi returned to life, raised an army, and invaded the villages of the Piman. I'toi had ordered his troops to

capture Nui alive; and although the vulture might take different forms, they would always know him by the

white leggings he wore. Though Nui fought

bravely, he was captured alive and brought to

Elder Brother, who promptly took revenge

upon his one-time killer by scalping him,

slicing the feathers and the upper layer of

skin from the vulture's head. Nui was left

with a naked head, its skin so red as to look

raw and freshly peeled; but, never one to

bemoan his situation, Nui then danced around

his own scalp as it lay in the dust. To the

Piman, Nui the Vulture's dance around his

scalp was the basis for their own Scalp Dances,

which were performed after a Piman warrior had

killed and scalped an enemy;<sup>[60]</sup> furthermore, a

warrior of the Upper Piman tribes who had performed

great deeds in battle was honored with a piercing of the

nasal septum. Nui had clearly won that honor at some point in

the far past, as he, too, had a conspicuously pierced septum.<sup>[61]</sup>



Not all Amerindian vulture tales are exclusive to a single tribe, or even to a single region; some are far more widespread. The most nearly ubiquitous of these must be a story concerning a man's envy of the vulture's life, which has been recorded all over South America and as far north as the Aztec heartland of Mexico. Typically, the story tells of a Farmer who goes out to his fields day after day, working from dawn to dusk, and grows jealous of the vultures he sees flying effortlessly, seemingly without a care in the world. Deciding that the carrion birds *must* have an easier time of it than he does, he tracks one of them down and asks if it will switch places with him; he wants to change into a vulture, and wants the Vulture to take his place in the fields. The Vulture warns him that the life of an avian scavenger is not as easy or pleasant as it appears to be to men, but the Farmer insists; and so he becomes a vulture. The Vulture then turns into a man, taking the Farmer's place in the fields and in his wife's bed.

Although the Farmer's wife is at first disconcerted by the change in her "husband," and especially by his smell, eventually she comes to enjoy him, as he has now become a very hard worker, and they never lacked for food thanks to his tireless laboring. The Farmer/vulture has a harder time of it; the other vultures sensed that there was something strange about him and never allowed him to feed with them, leaving him perpetually hungry. When he did manage to steal a scrap, he could scarcely force himself to swallow the rotting meat, and often he involuntarily vomited it back up. In short, he was hungry, lonely, and miserable; and one day when he saw the Vulture in his human guise going about his business, the Farmer/vulture jumped at the chance to approach him, and ask that they trade places again. The Vulture/man refuses, saying that what has been done is done, and reminding the Farmer/vulture that he was warned beforehand that the life of a carrion bird was not as easy or happy as he had thought. The Farmer/vulture persists with his request, and the Vulture/man eventually agrees - on the condition that the Farmer will always work hard and take care of his wife. And so, they switch places again; the Vulture/man becomes a vulture again, and wings his way off to enjoy the company of the other vultures, where the problems of men have no meaning. The Farmer/vulture turns back into his old self; although his famished appearance and his smell worry his wife, he keeps his word and works hard from dawn to dusk, and never again yearns for the life of a vulture.<sup>[62]</sup> Another variant of this story has a more melancholy ending, in which the Vulture/man, instead of agreeing to trade places again, tricks the Farmer/vulture into flying directly into a fire, where he is incinerated. The Vulture/man then stays with the Farmer's wife; although she strongly suspects that he is actually a vulture in disguise, she claims that she doesn't care as long as he provides for her.<sup>[63]</sup>

Peculiar as the concept of a vulturine spouse may seem to others, it was in fact quite a popular theme with the Amerindians. No great conceptual leap was required to imagine vulturine fidelity, because the vultures of the Americas were very conspicuous in their affection for each other. One of the most notable differences between the New World vultures and their Old World counterparts lies in their courtship rituals. Most birds have some sort of ritualized behavior to establish and strengthen the bonds between males and females, and the Old World vultures are no exception; but, as with the other true raptors, their courtship displays take place only in the air, in the form of synchronized flying and acrobatics. Demonstrating their evolutionary distance from the true raptors, New World vultures have taken a different path with their displays; although a few species do perform partially aerial displays, all species take part in what can only be called "mating dances," and they perform them on the ground. Typically, these dances take the form of male vultures parading before attentive females, strutting back and forth with their wings open, inflating their necks, changing the color of the skin upon their heads, emitting loud hissing noises, and generally making spectacles of themselves. Sometimes, the individuals of two different vulture species will even participate in the same dances.<sup>[64]</sup> Although the vultures prefer to perform these dances in seclusion, away from humanity's prying eyes, inevitably some Amerindians were privileged to witness these strange rituals; and, duly impressed, were inspired to use elements of the vulturine ballets in their own dances.

The Talamancan people of Costa Rica sung that their traditional dance had been brought to them by Sibú, the ruler of spirits, who arrived in the form of a vulture:

Sibú came in the form of a vulture / dressed as a man, / Collar on his neck.  
 The collar reflected, / He came with the collar / Ejené, ekujé / Ejené, ekujé  
 He came to give use the dance / He came from the air. / Ejené, ekujé / Ejené, ekujé.<sup>[65]</sup>  
 [Translated by Doris Stone]



This dance was performed in a circle, possibly because the local vultures normally flew in circles after eating,<sup>[66]</sup> or because the mating dances of vultures are normally performed in circular or figure-8 patterns. Similarly inspired by the dances performed by the local Condors, the people of the Andes have long traditions of performing vulture dances at festivals,<sup>[67]</sup> strutting and spinning beneath the austral skies in a curious physical homage to the mountains' greatest birds.

The best documented of these odd costume balls took place in California, where feathers and sometimes entire skins of California Condors were used in dances held to honor that bird. These rituals were particularly common in Central California among the Miwok, Patwin, and Pomo tribes. To the Patwin, the Condor skins used in the three-day-long sacred ceremony, the *Molok-yapi*, allowed the men who wore them to impersonate the powerful condor spirits. Some of the tribes that held such dances believed that the California Condor was once a human, and that when he was transformed into a vulture, he told the people whom he left behind that they should ever after perform a dance using his

feathers. The dancers who wore these skins seem to always have painted their faces red to mimic the Condor's coloration, and sometimes the rest of their bodies as well; during the rituals, the dancers effectively *became* the great vultures, in form as well as spirit, and they did their best to mimic the strange but careful movements of the birds.<sup>[68]</sup>

Among the Miwok of California's Sierra Mountains, the Condor was a "bird chief," and killing or capturing it for any purpose required an offering of food to be made to its spirit. After its death, the body of the vulture would be skinned, excepting only the head and feet, while keeping the feathers as intact as possible; and its corpse would be buried or cremated with additional offerings. After tanning and stretching the skin, the Miwok were then free to use it in their *moloku* dance. This ritual survived into the 19th century, when it was witnessed and recorded by outside observers. Only one male dancer, the *molokbe*, was granted the use of the Condor skin. The skin was worn around the torso, laced together at the front, and frequently was so large that the dangling tail feathers scraped on the ground as the dancer moved. The face of the *molokbe* was painted crimson from forehead to chin, a band woven from flicker feathers was placed on his forehead, and small feathered hairpins were placed into his hair above the temples and at the base of the skull, possibly intended to mimic the bristles upon the head of a Condor. With the preparations complete, the *molokbe* would then perform his dance in his village's ceremonial roundhouse; moving slowly and deliberately, he would strut about, making hissing noises while continuously bobbing up and down by bending his knees. On the whole, it must have been a very close approximation of the dances performed by male Condors.<sup>[69]</sup>



Such rituals required a fairly steady supply of birds, although it's unclear what role, if any, the condor dances had in the numerical decline of the California Condor. The birds were important enough among some Californian tribes that Condor nests were considered hereditary property,<sup>[70]</sup> meaning that there would be trouble if members of a different tribe attempted to take a Condor from a nest that wasn't "theirs." A few Condor dance traditions survived into the early 20th century; although, since the Condors were scarce or extinct in most of California by then, the "skins" that were used had to be fabricated from buckskin and the feathers of other birds.<sup>[71]</sup> Genuine Condor skins were among the most spectacular and unique physical objects ever made of vultures by humans; and it seems doubly tragic that so few have survived to the present day, as they would not only provide valuable evidence of these Amerindian rituals, but would also offer close facsimiles for similar garments thought to have been worn by revelers of the Vulture Cult in the ancient Old World. The only known surviving garment that consists of an entire Condor skin now resides in the Peter the Great Museum of Anthropology and Ethnography in St. Petersburg, Russia. It was collected in 1841 by the Russian explorer I. G. Voznesenskii in the vicinity of present-day San Francisco, probably from the Nisenan or Plains Miwok tribes. The outstretched wings of the skin span nine feet, eight inches (3 m) from tip to tip, and it's intact from neck ruff to tail. Rather surprisingly for such a large and seemingly cumbersome garment, the skin appears to have been worn as-is; the only alteration made by its original owners was to insert a small piece of wood into the base of the tail, in order to spread out the tail feathers.<sup>[72]</sup>

It's curious that despite their origins, none of these dances seem to have had any sexual or romantic element to them; as far as is known, only men were involved in them, and the dances were intended only to honor the great spirit of the birds, not to entice or impress members of the opposite sex. Still, the mating rituals of the vultures clearly made a deep impression upon the Amerindians who witnessed them. Fancy footwork aside, the physical aspects of vultures that may ordinarily seem unpleasant to humans seemed to make no difference in the ways of folkloric romance; in Amerindian stories, a person might fall in love with a vulture heedless of its unpleasant eating habits or any rank odor. A tale of Amazonia tells of a woman who was pursued by a persistent and malodorous, but apparently human, suitor. Although the woman continually spurned him by calling him an "opossum" (a severe insult, evidently), she eventually succumbed to his attentions, only to find that he was actually a vulture. She ended up being impregnated by his foul smell.<sup>[73]</sup> Nor was this attraction gender-specific; vultures could be either husbands or wives. The Arawak and Carib cultures of the Caribbean both had stories of a young man who married a vulture and lived in the sky with her, periodically visiting his earthbound kin by way of a rope that some helpful spiders had spun for him; however, the other vultures refused to have anything to do with the man, and he ended up making war on them with the aid of other birds.<sup>[74]</sup>

Many of the tribes of the Guianas and the Orinoco Delta in northern South America tell stories in which a cultural hero meets the king of all the vultures: *Bure kuamana*, "Two-headed vulture,"<sup>[75]</sup> who is so-called because (with a little imagination) a King Vulture's full, bare-skinned crop looks like a second head protruding from its chest. In these tales, the Hero typically plays dead or smears himself with blood or grease in order to attract the vultures. When they arrive, he notices the one predominantly white bird, perhaps imagining it to be the king of all vultures himself. But when he catches the bird or wins it over, he discovers that it's in fact the daughter of the Two-headed vulture, who has journeyed to earth from her palace above the clouds.

Won over by the Hero's wiles, the female vulture gives him wings to fly and travels with him travels with him into the sky. After a long journey, the pair arrive at the city of the vultures, where the

walls of every building are garlanded with rotting meat, the stench of which pervades the entire city. The entire city swarms with flies; the daughter of the king of all vultures explains to the hero that on Earth, the flies have the mission of looking for carcasses for the Two-headed vulture. When they find one, they fly to the city of the vultures and tell him where it is. The Two-headed vulture sends the common vultures, the Black Vultures, to fly down to the carcass and consume it, and he sometimes joins them as well. Whatever parts of the carcass the vultures can't eat immediately, they carry back to the city of vultures and hang for their houses, to later be devoured at their leisure.

In the city, the Hero finally meets with his prospective father-in-law, the Two-headed vulture,



who is none too happy with his daughter's choice of beau. As a result, the ruler of the vultures demands that the hero successfully complete several seemingly impossible tasks, such as draining a vast lake, baling out a deep well with a woven basket, and chopping down a tree made out of the hardest stone. Finally, it's demanded that the Hero must carve a perfect likeness of the Two-headed vulture into wood – but the catch is that the Two-headed vulture is still hiding his second head inside the feathers on his breast. As a result, the Hero has no idea what the second head looks like, and cannot possibly carve it accurately. He manages to circumvent this, possibly by transforming himself into an ant and crawling into the Two-headed vulture's private chambers to take a peek; and finally carves a flawless likeness of the Two-headed vulture, both heads and all. Some tales even say that the carving was able to speak, just like its living doppelganger.

Enraged rather than impressed by the Hero's accomplishments, the Two-headed vulture decides to kill him. With or without the knowledge of the ruler's daughter (the stories differ on this point), the Hero decides to abandon the city and his would-be bride and return to Earth, with the aid of the wings he was given. Halfway down from the clouds, he

looked back to see if he was being followed by any of the vultures, but he saw nothing. When he reached the treetops, he checked again – and saw the daughter of the

Two-headed vulture speeding towards him like feathered bullet. As she swooped towards him, she cried and asked why he was running away, because both she and her father loved him. Refusing to answer, the Hero finally dropped below the trees and touched the ground, with his erstwhile love following behind him so fast that she almost struck him with her claws. Safe on the ground, the Hero listened as the daughter of the ruler of the vultures screamed that he was lucky he had arrived first; for if she had caught him in the air, she would have torn him apart then and there. And, as retribution for his deceit, from then on all vultures would eat human cadavers whenever and wherever they were found.<sup>[76]</sup>

As avid as humans often were to wed vultures, or vice versa, the relationships never seemed to work out. In stories, the blame for such failed matches was usually pinned on the vultures, and not always fairly; although, at times, vulturine lust could become downright nasty. The Yokut tribe of Southern California's Central Valley tell a particularly chilling story with an unusual villain – a zombie-like California Condor. While Falcon was out gathering food, his wife was abducted by his elder brother, Condor. When Falcon arrived back at home, he found no trace of her, not even footprints. Falcon reported the absence to his tribal leader, who promptly suggested that she had been stolen. The whole tribe was assembled, and the best searchers among them were sent to look for Falcon's Wife. Turkey Vulture searched up and down the many canyons and ravines all day, but found nothing. Wind blew across the whole world, into every nook and cranny, but found nothing. Bottlefly searched in all four cardinal directions, and found nothing; then, in exasperation, he decided to look up in the sky. High above the earth, he saw a house – and through a window in the house, he spotted the anxious face of Falcon's Wife. Bottlefly rushed back to earth and told everyone what he'd found; Coyote knew that it could only be Condor who owned the house and abducted Falcon's Wife. Coyote spoke Condor's name with a shudder; everyone feared him, but no one wished to fight him, because his body was made of stone. His only weak point was his heart, which could be seen through a small hole in his back. Nevertheless, the next day Falcon flew to Condor's house on a magical bow, the only means of transportation to such a high place. At the door, Falcon called to his wife to come out; she greeted him wearing a necklace of human bones, which was Condor's idea of an engagement gift. Falcon and his Wife sat on the magical bow together and flew back to earth, where there was much rejoicing among the people that they were both safe and sound.

When Condor arrived at his house later that day, he found his abductee gone, and the necklace of bones he had so generously given her flung onto the floor. Storming with rage, he flew down to earth, demanding the whereabouts of Falcon from every terrified person he encountered. Condor finally tracked down Falcon, but his Wife was nowhere to be seen. Condor told Falcon in no uncertain terms that the lady was his wife now, and that he would fight Falcon to prove it; the survivor would have her. Falcon agreed, and so Falcon and Condor traveled to an open plain for their duel. Falcon conjured fog to hide himself from his much bigger and stronger opponent, and delegated his younger brother Sparrowhawk to shoot at Condor's heart through the small hole in his back. Meanwhile, Condor strung his own bow and shot Falcon three times, but the arrows merely chipped stones off of Condor's body. Condor shot at Falcon, but the fog threw off his aim, and his arrows missed; but Falcon dropped small pebbles onto the ground to fool Condor into thinking that his arrows were finding their mark. All the time, Sparrowhawk shot at Condor's heart; and after several minutes, the fearsome Condor finally fell to the ground, apparently dead.

Falcon, Sparrowhawk and everyone who had witnessed the duel gathered a heap of wood around Condor's body, intending to cremate him where he fell – but his stone body wouldn't burn. Condor's head came back to life, and taunted them, screeching, "You can't kill me!" Coyote suggested that they burn the body with grass instead. They finally managed to burn the body, but Condor's head remained, taunting and ridiculing them all the while. Nevertheless, the people decided that they had finally killed him – all except Falcon and his Wife. They decided to camp out near the head, just to be sure. Overnight, the head attempted to flee, but Falcon caught it. When it tried to bite him, Falcon smashed the head as hard as he could on some jagged rocks – but it couldn't be destroyed.





In desperation, Falcon and his Wife decided to flee to an Aunt's house. They packed up and left, Condor's head trailing them all the while. Falcon tried to smash it many, many times, but it just kept coming, and actually seemed to grow stronger and bolder with every blow. As they neared the Aunt's house, she saw what was happening, and yelled at them to run – the head was close at their heels now, its red eyes smoldering with inexpressible hate. Just as it was about to catch them, they rushed into the house, and Aunt slammed the rock door of the house closed. Condor's head crashed into the door, and shattered into a million pieces. And that door is now a Central Valley landmark, known as Echo Rock.<sup>[77]</sup>

The Warao tribe of South America tell a story of man who managed to catch a vulture wife, only to lose her to his own foolishness. While searching for prey deep in the forest, a Hunter came across a large, mysterious house from which blared shouts, cheers, and strange music. Creeping up to a window, he was astounded to see many people inside the house, dancing, drinking and carousing. Although they were human in form, they all had very pale, almost ivory skin, and wore strange nose ornaments; and so they could only be King Vultures, those pale, nose-ornamented birds, who

had taken off their feathers for the occasion. The Hunter stayed at the window watching the partying vultures into the evening and all through the night, only returning home in a daze the next morning. Two nights later, he returned to the same spot and found the strange house again. The unfeathered vultures were still dancing, drinking, and carousing, and the hunter was mesmerized as he watched them – particularly the women. They were so beautiful that he swore to himself that he would have one of them for his wife; but how? Feathered or not, vultures were shy of people, and would surely flee at the very sight of him.

The Hunter crept towards the vulture house, using the tall grass surrounding it for cover. He finally managed to reach an open doorway of the house without anyone seeing him; and fortuitously, the vulture women happened to be dancing back and forth near the door. The hunter tensed himself as the lovely women danced towards him. When they had come as close as possible, he lunged out and grabbed one of them – and in the same instant the other vultures and their house faded into the night, leaving only trees and bushes in the darkness. But the Vulture Woman was still in the hunter's clutches. She struggled in his grip, kicking and clawing at him until she exhausted herself. Not loosening his grip a bit, the Hunter spoke softly to her, telling her that he wanted her for a wife, and that she would have everything she ever wanted if she stayed with him. The Vulture Woman finally conceded – on one condition: He must never beat her. He promised that he never would, and the more-or-less conciled couple walked to his home together.

They lived contentedly there for some time, although they found it hard to adapt to each other's idiosyncrasies. The Hunter was particularly irritated by his new wife's refusal to either cook or

eat meat right after he had brought it home; she always insisted on waiting a day or two first, claiming that it would taste much better that way. This began to get on his nerves. One day, after a particularly exhausting hunt, he returned home famished, and loudly ordered that she must cook up the meat immediately. She refused; enraged, he slapped her several times, then went ahead and cooked it to a crisp himself. On two more days, she refused to cook meat immediately, and twice more, he beat her in response, more severely each time. All the while, she never complained or reminded him that he had broken his promise; but after the third beating, she suggested that they should both go to see her father, the Vulture King. The Hunter agreed, and even went out hunting for meat as a gift for her father.

When the day of the trip arrived, the Vulture Woman gave her husband vulture feathers, telling him that he must wear them to travel to the Vulture Kingdom. She put on her old feathers, too; and the couple traveled far into the bush, until they found the steps placed by the vultures to assist their visitors. After a long climb, the couple arrived at the Kingdom. The first to greet them was the Vulture Woman's father, the Vulture King, in all his colorful attire. He shook hands with the Hunter, and gratefully accepted the meat the Hunter gave him; but when the Hunter was out of earshot, the Vulture Woman whispered to her father that her husband was beating her, despite promising not to. Afterwards, the Vulture King was cool and brusque towards the Hunter. He told him that he and his wife could stay in the Vulture Kingdom – but only until tomorrow. With that, all of the strange and marvelous sights of the Kingdom were off-limits; but never fret, the King said, "I will come to Earth and visit you one day, or my people will." When the couple returned back to earth the next day, the Hunter raged about the inhospitality of the vultures, calling them ugly, stupid, smelly birds. His wife protested, reminding him that she was one, too; and he beat her again, so badly that she was ashamed to even look at her bruised face in a mirror. That evening, she put on her feathers, walked outside, and without a word, flew away.

With the light of his life gone, the Hunter fell into a deep depression. He spent days out in the bush, looking for the house where he had first laid eyes on the Vulture Woman, but it was nowhere to be found. Meanwhile, the Vulture Woman had returned to her Kingdom. She sobbed as she told her father about everything that had happened. He gently consoled her, and said, "Don't cry, my child. I told your husband that I would visit him on Earth, or my people would; and so they will." He motioned to the Black Vultures, the most feared warriors of the Vulture Kingdom; they knew just what to do, and departed without a sound. The Black Vultures winged their way to Earth, and found the spot where the vulture house had once stood. They found the Hunter there, weeping disconsolately over his lost wife. Without mercy, they attacked, killed him, and ate him on the spot. Thus to all wife-beaters.<sup>[78]</sup>

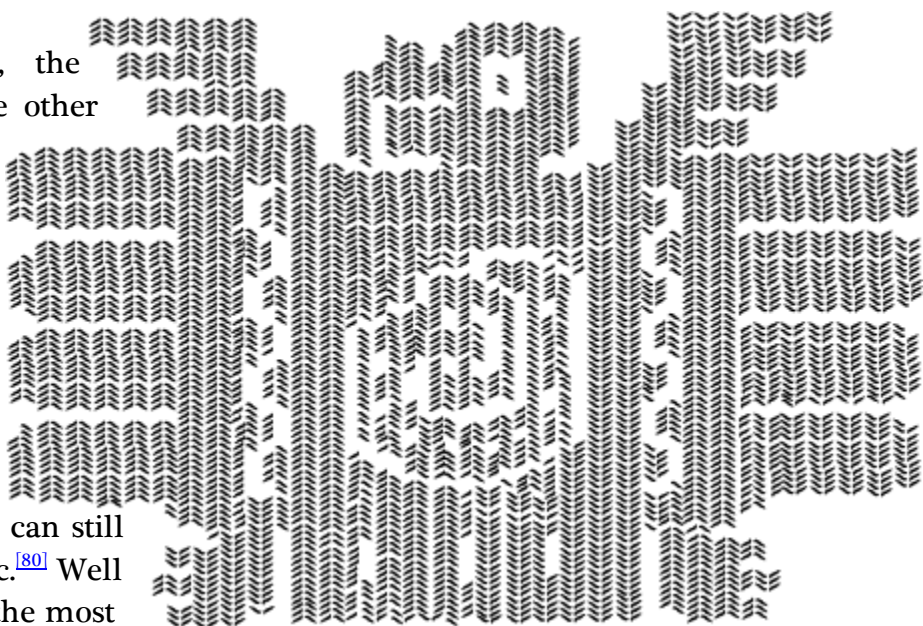
The Quechua people of the Bolivian Andes tell a tale of a vulture, an Andean Condor, who sought a human wife for himself. It seems that the Condor had seen a young shepherdess tending her flock as he was flying past, and immediately fell for her; literally, as he stooped to earth, changed himself into a young man, and asked for her hand. She initially spurned him, without realizing that he was a vulture in disguise; but the Condor/man managed to trick her into climbing onto his back. He then quickly changed back into a Condor, and carried her off into the sky. Some time later, they arrived at a vast cave near the summit of a mountain, where a great number of other Condors were already perched. Among them was the lovestruck Condor's mother, who was so thrilled to see her son's new bride that she wrapped her huge wings around the Shepherdess, cradling her from the cold mountain air. Although the Shepherdess was initially happy with her affectionate Condor beau, she soon became hungry, as he had never brought her anything to eat. She mentioned this to him; and

not wanting to fail as a provider, the Condor took flight, dug a spring with his bill and brought water from it, unearthed old potatoes and carried them back to the mountain cave, and tore bits of carrion from dead animals and presented to his bride as though it was fine caviar.

After many, many more meals like this, the Shepherdess had begun to long for her old home again. It wasn't just the bad food that made her existence miserable; like many a newly married husband, the Condor seemed to be perpetually aroused, and the Shepherdess soon became weary of his amorous embraces. As time went by, she became very thin and she sprouted feathers all over her body. She even laid eggs, from which Condor chicks hatched. While all of this was going on, the Shepherdess's mother was pining away for her daughter in an empty house. A Parrot who lived nearby took pity on the woman and told her what had happened to her daughter, and promised to bring the young Shepherdess back if her mother would grant him the corn in her garden, and trees to build his nest in. She agreed, and the Parrot flew to the mountain cave, waited until the condors were all away, then picked up the Shepherdess - parrots were much bigger then - and carried her back to her mother. Although the Shepherdess was thin, rank-smelling, and looked like an outcaste dressed as a bird, she soon became well again under her mother's care.

The Shepherdess's Condor lover soon returned to the cave, only to find his bride gone. Learning of the Parrot's role in her disappearance, the enraged Condor tracked down the Parrot and found him in the garden, flitting from tree to tree. The Condor swooped down on the unsuspecting Parrot, and swallowed him; but the Parrot then emerged from the Condor's cloaca, whole and unharmed. Again the Condor swallowed him, and again the Parrot returned fit and healthy. In a berserk frenzy, the Condor then tore the Parrot to pieces with his bill and talons, and swallowed the pieces one by one. But still the Parrot could not be killed; for each piece that the Condor swallowed, a miniature Parrot emerged and flew away. This, of course, is the origin of the parrots that we know today.<sup>[79]</sup>

With or without human lovers, the Andean Condor had no rivals among the other birds of the Andes Mountains in its artistic and mythological prominence. The earliest specifically identifiable bird found in any New World art is a Condor, found in ancient Peruvian cotton textiles dating from 2500-2000 BCE. The colors of these textiles have long since faded, leaving only the raw cotton, but the patterns that they once bore, such as a stylized yet recognizable male Andean Condor (right), can still be reconstructed from warping in the fabric.<sup>[80]</sup> Well



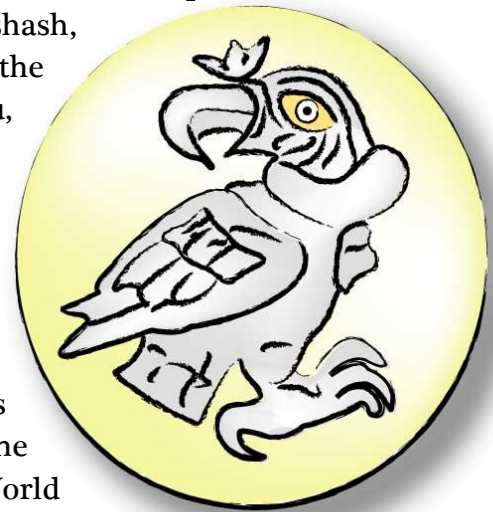
into historic times, the Condor was one of the most common (if not *the* most common) motifs in textiles, pottery and woodwork, and it's always been a beloved character in folklore. Many of the Andean peoples maintained that they were descendents of the Condor, the guardian bird of the creator Viracocha; and that through the birds, they were connected with their domain of the mountains and the heavens.<sup>[81]</sup>

Condors and certain of their body parts, especially their heads, are frequently shown as adornments of gods and royalty. The chiefs of some Andean peoples wore the wings of condors at festivals, and a number of different tribes each claimed the prestige of originally descending from the



great *Kuntur*.<sup>[82]</sup> The Amerindians dwelling in the mountains surrounding Lake Titicaca worshipped a thunder god known as Con or Cun, the *Ccollo-auqui* (“lord of the mountains”). His sacred bird was the Condor, so often seen soaring along the snowcapped peaks.<sup>[83]</sup> The Inca maintained that the Condor carried out an even more important task; it was the Condor’s daily duty to haul the sun out of a sacred lake in the east each dawn, and release it into the sky, to slowly fall to the west through the day.<sup>[84]</sup> Among the Chinchu people of Peru, it was said the Condor was granted its great powers by a god, Coniraya. This deity encountered the Condor during his pursuit of a goddess who had fled from him, along with their child. The Condor promised him success in his pursuit, and in return Coniraya gave the Condor a promise of long life, the power to sail endlessly over wilderness, mountains and valleys, the right to take prey; and he cursed anyone who would ever kill a Condor, condemning them to death. And so the Chinchu venerated Condors, and never killed them for any reason.<sup>[85]</sup> To many Andean peoples, Condors were not just of the mountains; in some sense, they *were* the mountains. Peruvians think that a perched Condor looks like, and symbolizes, the three levels of a mountain. Its feet are the fields at the base of the mountains, protruding into the rivers that wind their way through the Andes. Its black-feathered back is the trunk of the mountain, sloping steeply upward; and its white neck ruff is the snowcap of the mountain’s summit. In order to placate the mountain gods, Andeans keep their earth shrines steadily supplied with sacrifices like food, llama fetuses, and, at least until the European conquest, human beings. The earth shrines to which these offerings were made were called *mallku*, “condors.”<sup>[86]</sup>

The societies of the Andes were similar to those of Tibet and the Himalayas in many respects, due to similar demands of living in harsh, high-altitude environments. However, in a conspicuous difference from the Old World, there don’t appear to have been any New World societies, in the Andes or anywhere else, in which vultures were ordinarily used to dispose of the deceased. But there were at least one or two cultures in which vultures were actively encouraged to dispose of the corpses of prisoners or captured enemies. The most detailed archaeological evidence for this practice is found among two cultures of the South America, the Moche and the Pashash, which were contemporaneous from early in the first millennium CE to the early 8<sup>th</sup> century CE. Both were located in what is now northern Peru, along the Pacific slope of the Andes Mountains, where there are four local vulture species: the Andean Condor, the Turkey Vulture, the Black Vulture, and the King Vulture. The latter species is rarely seen, although it was occasionally depicted in Moche art ([right](#)). The Moche and Pashash occupied a narrow band of habitable land between the deserts of the Pacific coast and the high peaks of the Andes. Both cultures ordinarily buried the bodies of their own citizens; exposure rites using vultures were reserved for the “other”: prisoners, whether of crime or of war, or victims intended for human sacrifice. Even by New World standards, the north coast of Peru was apparently a very culturally distinct area for more than a thousand years, which displayed little influence from outside societies until the arrival of European colonists. This isolation helps to explain why this area alone developed such ritualized exposure rites.



Among the Moche, it's thought that exposure took two distinct forms. The one that more closely resembled Old World exposure practices was a ritual in which bodies, or parts thereof, of sacrificed prisoners of war were fed to Andean Condors. <sup>[87]</sup> Moche art includes a number of depictions of Condors (usually one, never more than two) pecking at human bodies or heads. The archaeologist Anne-Marie Schaffer suggested that this art depicted the fates of prisoners of war captured by the Moche; as with the more famous Aztec culture of Mexico, it appears that the primary objective of Moche warfare was not to kill the enemy or capture his territory, but rather to take prisoners which were later ceremonially sacrificed. <sup>[88]</sup> Interestingly, only Condors (and male Condors, at that) are ever depicted in these works; the smaller vultures are absent. Schaffer suggested that this indicated that *only* Condors were allowed to eat the sacrifices, befitting their high hierarchal rank among the Moche. <sup>[89]</sup> More likely, only male Condors are depicted in the Moche art because they were the largest and most powerful of scavengers, with corresponding spiritual importance, and so were best able to symbolize a final victory over the sacrificed enemies.



There is also evidence for a similar practice among the Pashash. Pashash was a walled town, higher in altitude than the Moche dwellings at about 3,255 meters (10,680 ft), <sup>[90]</sup> well within the favored haunts of the Andean Condor. One of the few known artistically worked vulture bones from the New World was found at Pashash,



the ulna of a Condor (above) that had been carved with a geometric pattern and then inlaid with red paint. <sup>[91]</sup> More noticeable evidence of the familiarity with Condors is found in several relief carvings scattered throughout the town. Some depict isolated Condors or Turkey Vultures, but several show the birds feeding on human heads (left). <sup>[92]</sup> There's no archaeological evidence for the wartime practices of Pashash one way or the other, but it seems probable that these were the heads of decapitated prisoners deliberately exposed to the vultures.

As the Moche and Pashash cultures were contemporaneous and warlike neighbors, a fair number of their battles were probably against each other, and there may well have been a system of reciprocal prisoner sacrifice going on –

much to the pleasure of the local Condors, no doubt. Societies in the Old World have a long and well-documented record of using or encouraging vultures to feed on the bodies of dead enemies (as we'll see in [Chapter 10](#)), and such practices also occurred with some frequency elsewhere in the pre-Columbian New World.

However, the other Moche ritual was far removed from any other known practice of exposure. Moche art contains many depictions of Black Vultures, which, unlike the Condors, are always shown in groups. Several ceramic bottles have been recovered from the Moche site that are decorated with

extremely elaborate, intricate scenes of Moche rituals<sup>[93]</sup> – including what appear to be depictions of people being fed alive to Black Vultures ([below](#)).



One Moche pot is glazed with a very detailed, graphic scene ([left](#)) of two oversized Black Vultures attacking a supine nude woman bound at the neck, wrists, and ankles with rope. Her face appears to have been skinned beforehand, and her bowels have been exposed by the attacks of the

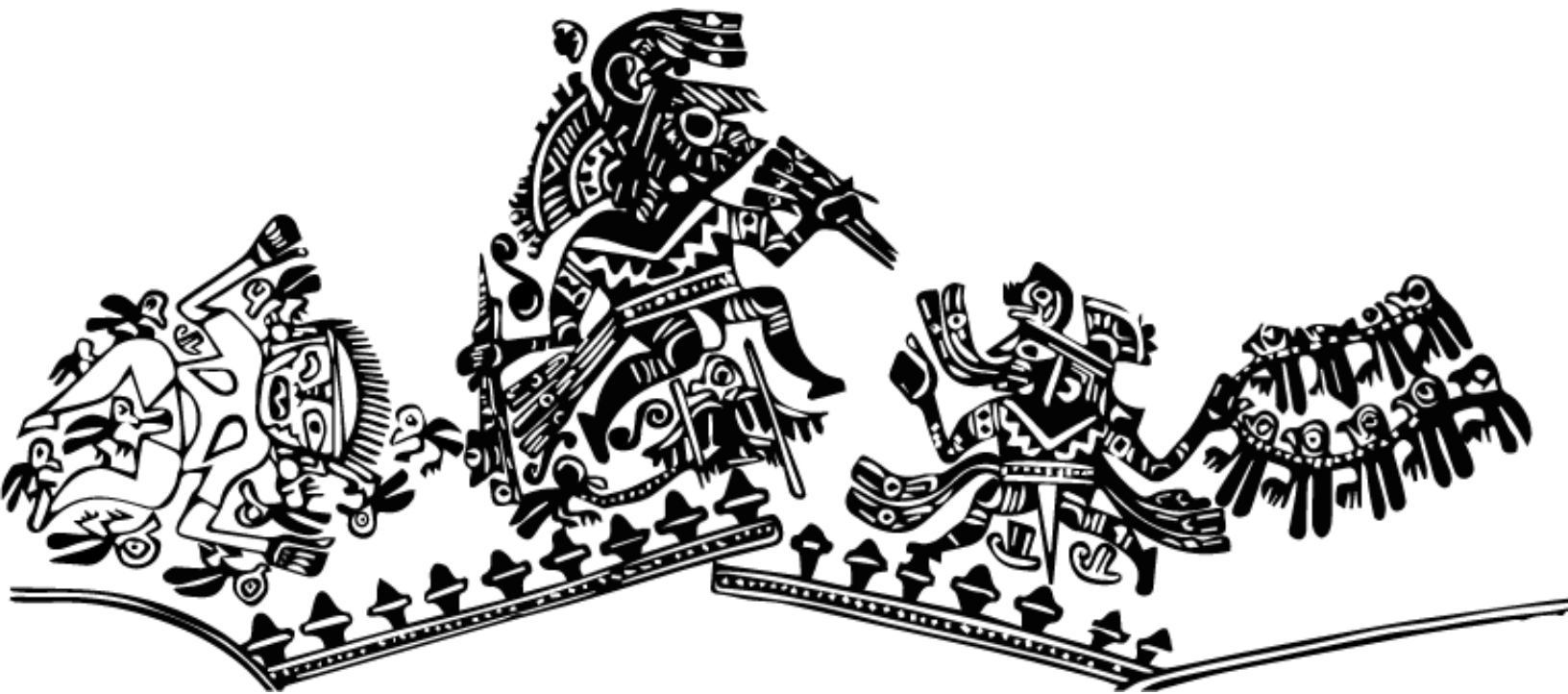


Vultures' long, sharp bills. In addition to these elaborate executions, some Moche art depicts single individuals or man-woman pairs tied to trees or upright wooden racks, with their flayed faces being fed upon by Black Vultures.<sup>[94]</sup>

Looking at the rather gruesome Moche oeuvre as a whole, the most logical explanation for this art is that the Moche kept flocks of Black Vultures in captivity, and used the bold, aggressive birds to torture and execute prisoners. Use of Black Vultures to kill and consume immobilized prisoners has been documented elsewhere, in the 19<sup>th</sup> century United States (more about that [in Chapter 8](#), if you

dare), and present-day Black Vultures are well-known for their ability and willingness to attack, kill, and devour large animals that are unable to effectively defend themselves – though the birds only do so while in large groups. The Vultures depicted in Moche art were apparently captives, which were led to the execution grounds while roped together ([as seen below](#)), and so presumably were habituated to attacking live humans in coordinated group assaults. Flaying the faces of victims was probably done primarily to encourage the Vultures to attack their human prey (by presenting them with open wounds), although it may also have had some ritual significance. The birds have been very efficient and effective at their work, as the still-shocking Moche art amply attests.





That much is not in doubt; however, among the archaeologists who have studied the Moche, opinions drastically differ upon the question of who was punished with vulture execution, and why. Christopher Donnan and Donna McClelland believed that the multiple pieces of art showing vulture execution depicted a single incident, and that the unfortunate woman was a doctor or healer, who was punished for the death of her patient by being fed to the Vultures.<sup>[95]</sup> Anne-Louise Schaffer suggested instead that vulture execution was an everyday practice among the Moche, as a punishment meted out to criminals such as thieves or adulterers (which would explain the high proportion of women among the victims, as well as the occasional man-woman pairs).<sup>[96]</sup> Steve Bourget states to the contrary that the artworks depict a Moche ceremonial ritual that was part of a larger religious pageant of death and resurrection.<sup>[97]</sup> All of the above may have been partially accurate in different situations, as there could conceivably have been more than one Moche ritual of vulture execution. The intricate pottery scenes of groups of Vultures being led to bound, prone female prisoners and ripping into their entrails seem to have little in common with more stark sculptures of single Vultures pecking out the eyes of males or pairs tied to trees; and among the Moche, there may have been a variety of different crimes that warranted vulture execution, just as there are many different crimes that warranted capital punishment in other societies. Alas, the Moche took their secrets to the unmarked grave common to all preliterate societies, so we'll never know for sure.

The Moche and Pashash cultures disappeared around the beginning of the 8<sup>th</sup> century CE, long before Europeans arrived in the New World, and there's no evidence that any vulture execution rituals still existed when Europeans first started to chronicle the cultures of the Americas in the 16<sup>th</sup> century. Elsewhere in the New World, funerals in which the dead were fed to vultures were extremely rare, if not actually nonexistent. As in the Old World, many Amerindians did leave their dead out in the open to slowly decompose. Tree burial was also common, although only in arid areas where the dry air was conducive to preservation.<sup>[98]</sup> The Teton Sioux placed their dead in trees in forested areas, and upon scaffolds where trees were scarce.<sup>[99]</sup> Chippewas placed coffins on their



scaffolds,<sup>[100]</sup> and many tribes of the Pacific Northwest left their dead in canoe "sandwiches," which comprised one canoe to hold the body, and another canoe placed upside down on top of the first, to cover the body.<sup>[101]</sup> However, in a notable contrast to the exposure practiced by some Old World cultures, special care was taken with all of these rituals to keep the corpses from being eaten by scavengers. If the body was not entirely encased in wood, as with the canoe burials, then it was wrapped with skins, blankets or robes, and tied up with ropes and thongs.<sup>[102]</sup> The Cheyenne preferred to place their dead on scaffolds raised off of the ground; if bodies had to instead be laid upon the ground, they would be covered over with stones to deter scavengers.<sup>[103]</sup> Violation of these bodies was taken rather personally; the Mandan tribe of the North American plains disliked Turkey Vultures and Ravens because those birds often tried to eat the bodies of their dead after they were placed on scaffolds.<sup>[104]</sup>

Based on presently known archaeological evidence, there appear to have been no cultures or systems of belief in the New World in which the dead were habitually exposed to vultures, as they were in (for example) Sassanian-era Persia or Buddhist-era Tibet. As far as can be deduced from their surviving artwork, the rituals practiced by the Moche and Pashash were closer in spirit to the many Old World practices of humiliating dead persons who were held in contempt, like enemy warriors and criminals, by feeding their remains to scavengers – although the Moche practices were far more elaborate and ritualized, and probably had spiritual functions that we can only guess at. In particular, the Pashash practice of executing POWs and then feeding their bodies (or parts thereof) to Andean Condors had parallels elsewhere in the world, as we'll see [in Chapter 10](#). The lack of more typical exposure rituals in the New World must be chalked up to a simple case of cultural isolation, especially from the Vulture Cult of the Old World; and this dearth of American vulture funerals strongly suggests that, at least in East Asia, where the first Amerindians probably originated, the various exposure traditions of the Old World didn't start until *after* the human migration to the Americas had already taken place.

They may not have been invited to the feast, as it were, but American vultures were just as avid about homophagy as were their Old World counterparts. The art of the Moche and Pashash is certainly the most detailed and graphic, but vultures pecking at human bodies, or even eating human limbs, are readily found in other pre-Columbian art. Other than the aforementioned abhorrence of scavengers that violated exposed bodies, few New World cultures attached a stigma to scavengers that would feed on human corpses. There is one important reason for this, aside from the fact that vultures were mostly held in high regard by Amerindians: many Amerindians were man-eaters themselves. The Aztecs' practice of consuming the victims of their human sacrifices is the best-known example of New World cannibalistic behavior, but many other American cultures practiced it, from the "man corn" eaters of the southwestern North American deserts to the Caribs of the islands, and even to the complex urban society of the Inca. Thus, when New World vultures are depicted eating humans in one situation or another, their actions can sometimes be thought of as a metaphor for human behavior, as well as an accurate description of vulturine behavior.

Another kind of New World bird was said to sometimes eat humans as well; but it didn't scavenge them, it preyed upon them, often by swooping down and carrying them into the air with its gigantic talons. This was the Thunderbird. In pre-Columbian times, it was the most widespread of North America's mythical animals; the people of cultures from the Yukon to Florida believed in a gigantic bird or bird-like creature, which was said to bring thunder and rain when its vast wings darkened the skies. Under that generalized umbrella there were myriad interpretations of what the Thunderbird really was, and of what it was capable of. Some tribes considered it to be only a huge

creature with supernatural powers, little different from any other large and fearsome animal. Others said it was partly human, with a human head or a human face in its belly, or even that it was really a brother of the tribespeople who spoke of it. Amerindians of the Pacific Northwest believed that the Thunderbird hunted whales. Cultures farther inland held that the Thunderbird hunted land animals, including deer and humans. Aside from huge size and an explicit association with rain, about the only Thunderbird trait that all of these traditions can agree on was its diet: it ate meat. It's impossible, at this late date, to categorically state which bird(s) the Thunderbird was originally patterned after; but that hasn't stopped anyone from trying, and just about every large North American bird, living or extinct, has been volunteered as a candidate.<sup>[105]</sup> The most popular of these proposed proto-Thunderbirds are (in decreasing order of popularity) the California Condor, the Golden Eagle, and the long-extinct teratorns. There is some evidence to support each of those candidates, but there is considerably more to suggest that the Thunderbird was not originally based on any of them.

Aside from immense size, the Condor's primary claim to serving as the basis of the Thunderbird rests with its eating habits. The sight of California Condors feeding on the carcasses of washed-up or beached whales was a common one along the Pacific coast until the mid-19th century. Tales of giant birds feeding on whales were no doubt passed up and down the coast, which may explain why whale-eating Thunderbirds were spoken of even in areas where the Condor was unknown. Thunderbirds were said to be fond of whale meat; but, unlike Condors, they reputedly caught the sea mammals themselves, snatching whales from the water and bearing them aloft in their talons, in much the same way as a Bald Eagle catches a fish. The Golden Eagle is also a very large bird, and its predatory habits seem similar to those sometimes attributed to the Thunderbird.

There's still an insurmountable problem with the candidacy of both birds, and that lies in the Thunderbird's link with the rains. Rain was of extreme importance to all American cultures, especially to those who depended on agriculture for most of their food. The gods of rain were always among the most important in their respective pantheons. A number of cultures in the Americas' more arid regions withered away to extinction due to years without rain; and the classical Mayan civilization, considered by many to among the most advanced societies in the world, collapsed entirely in the ninth century CE due in part to a series of droughts. Naturally these people would look for signs that the dry season was over and that the rainy season was about to begin; in other words, that the winter was coming to an end and that spring was arriving. One of the clearest signs of spring in North America (or anywhere else in the northern hemisphere) is the arrival of migrant birds, which have sought out warmer climes for winter and that return to the north just in time for the warm and wet bounty of springtime. Obviously, the Thunderbird was thought to be just such a migrant; it was said to arrive with the rains, and depart for the dry season. The Iroquois performed their Thunder Dances during the summer in celebration of their conception of the Thunderbird, the "grandfather thunderers," who always departed to another part of the world during the winter. From this standpoint, neither the California Condor nor the Golden Eagle can be considered the sole progenitor of the Thunderbird, because they are both largely sedentary. Condors may wander, especially before reaching adulthood, but there is little temporal pattern to those movements; they may occur at any time, and in any direction. Eagles (again, particularly the younger birds) may migrate, but those in western North America, where the Thunderbird legend was most prevalent, generally do not.<sup>[106]</sup> What movements Condors and Eagles do make are undertaken singly or in small numbers, and unobtrusively; there seems to be little mythical material there. Both birds could well have inspired elements of the Thunderbird legend - the California Condor for giant size and whale-eating, the



Golden Eagle for predatory habits - but not for its most important trait, the link with the rains that gave it its name.

The enormous size of the extinct teratorns makes them attractive candidates for the Thunderbird, and the known fossil range of Merriam's Teratorn, centered in the western US, coincides closely (though not exactly) with the areas where Thunderbird myths occur. I personally think it's very likely that the Thunderbird, as well as other giant bird myths of North America, was based in part on distant collective memories of the extinct giants. Still, the teratorns were probably no more migratory than the California Condor. If the North American teratorns migrated during the autumn and spring, we would expect to find their fossils in Central or South America as well as in the north. No such fossils have been discovered, making for a very strong argument against teratorn migration. Again, we must turn elsewhere for the source of the Thunderbird's thunder.

One concern that is sometimes forgotten when dealing with fantastic myths like that of the Thunderbird is that all such tales, no matter how incredible they are, were originally rooted in observable reality. When weaving their tales and legends, the pre-Columbian Amerindians were as literal-minded as anyone else; we've already seen that their stories of humans and other creatures riding upon vultures' backs, contrary to the Old World convention of humans being carried in vultures' talons, were based in practical observations of real vultures. Perhaps, then, the origins of the Thunderbird's most important characteristics - the very traits that made it a "thunder bird" - should be thought of not as wholly imaginative constructs, but as the practical basis of a large bird that arrived in the rainy season and carried moisture along with it like a stormcloud. When the issue is approached from this pragmatic perspective, it becomes patently obvious that, though the Thunderbird is a composite creature, the strongest claim for its mantle can be advanced not by Condors, Eagles, or teratorns, but by the common, nondescript Turkey Vulture.



Consider: the Thunderbird is usually described as being colored like a dark cloud. Any stormcloud, no matter how dark, has a silver lining, much as the Turkey Vulture has a dark body with silver-lined wings. This resemblance is duly noted in a storm song sung by the Piman, which goes, in part: "Black clouds are drifting over there / Appearing like black Turkey Vultures / Drifting over there. / Far away it is loudly rumbling / All over the land it rumbles."<sup>107</sup> In all but the warmest parts of North America, and especially in western North America, where the Thunderbird tales are most common, Turkey Vultures undertake seasonal migrations, leaving the continent for Central or South America in the autumn and arriving back in early spring, along with the rains. Local populations of vultures

depart and arrive simultaneously, and in great numbers; during the height of the migrations, thousands of birds *per day* can be seen flying along the most popular routes. The departure and arrival of Turkey Vultures is newsworthy, and celebrated, in a few parts of North America even today; imagine how important the events must have been in pre-Columbian times, when all of society was firmly rooted in natural cycles. Last but not least, Thunderbirds were often said to carry lakes on their

backs, from whence the rains came; how else could the Thunderbirds dispense their water, than by teetering in the manner of a Turkey Vulture? Both California Condors and Golden Eagles are usually rocksteady in flight, while a flying Turkey Vulture often looks like it's fighting a losing battle to remain upright, especially in the strong winds that accompany thunderstorms. It isn't difficult to imagine such a bird holding a reservoir of water on its back, sloshing drops from its wings as it tilts back and forth. If we can picture Amerindians watching Turkey Vultures arrive in great numbers at the beginning of springtime, their silvered wings mirroring the storm clouds that closely followed them, and seeing drizzles fall from the sky as the birds teetered from side to side, then the original conception of the Thunderbird seems no more fantastic than the idea of the first Robin heralding the arrival of spring.

Elsewhere in the Americas, where the Thunderbird proper was unknown, vultures were still commonly associated with rain and thunder. Nui, the Turkey Vulture, is most definitely a rain bird among the Piman; the Vulture and particularly its feathers have always been intimately associated with clouds and water, and it's said that it distributes rain and medicine with its wings. Piman shamen use the primary feathers of Turkey Vultures for diagnosing illnesses, and for divination.<sup>[108]</sup> Aside from the seasonal movements of the birds, these beliefs were likely inspired by the so-called "passive bathing" of the Vultures: in the drier areas of the American Southwest, Turkey Vultures often bathe by roosting in rainstorms, spreading their wings and tails to the fullest extent in order to soak up as much rain as possible.<sup>[109]</sup> The Piman story of Turkey Vulture's role in the origin of their lands is similar to the O'odham story related at the beginning of this chapter; and Nui's creation of the hydrological system of their deserts was arguably his most important contribution to the Piman. After all, without the mountains, valleys, and canyons carved by his wings, water would not flow anywhere, and the rain that the vulture would later bring would simply pool and evaporate. The Piman still sing a song to celebrate Nui's creation of the modern world, as follows:

Buzzard bird / Buzzard bird / You have made the land just right.  
Buzzard bird / Buzzard bird / You have made the mountains just right.  
The land is still now / And on it everything seems to be all right / Everything is made perfect.  
The mountains were shaking / But now they are still / And on them everything is perfect.<sup>[110]</sup>  
[Translated by Amadeo M. Rea]

In the less dry but equally vulture-populated region of Mesoamerica, the Maya said that if a person dreamed about vultures, it meant one of two things, both of which were obvious associations for them: either a funeral was at hand, or the rainy season was near.<sup>[111]</sup> In central Mexico, the Nahuatl-speaking descendents of the Aztec people still practice a Rain Petition Ceremony, in which Turkeys are sacrificed at altars placed on high peaks. It's believed that if Turkey Vultures, the true messengers of the gods, arrive to feed on the sacrifices before Black Vultures (as they normally would), then the coming year will be blessed with prosperous rains. The Zapotec people of the Oaxaca region in southern Mexico worshipped a god named Coqui Xee, who manifested himself to humans in the form of clouds and thunderstorms but whose true form could never be seen by humans. Some of his lesser associates could be seen, however, and these commonly took the form of vultures as they carried out Coqui Xee's work of watering the land.<sup>[112]</sup> Like many Mesoamerican cultures, the Zapotec practiced farming and depended largely on maize for food; rain was absolutely vital to their survival, and it's a testament to the vultures' evident power that they were credited with bringing the rains. The vultures of Mesoamerica don't ordinarily migrate; but there was another reason for this steadfast belief in their

appearance with the rains. To prepare for planting, Mesoamerican farmers slashed and burned their fields in order to clear the fields of weeds and brush and to provide the soil with extra nutrients in the form of ash. The burning portion of these preparations was lethal to small animals living in the fields, especially reptiles, amphibians, and insects; if not roasted alive in the fires, they would be made so groggy and panicked by the smoke and flame that they would become easy prey for any predator that happened by. Vultures knew this, and predictably appeared at the fields just as the pre-planting slash-and-burn commenced - right at the start of the rainy season.<sup>[113]</sup>

Another, more grisly vulturine connection with the Thunderbird and similar gods or spirits of rain is found in the sacrifices that were used to placate them in some societies. For deities as important as rain gods, nothing less than a human sacrifice was thought to be required, and often the sacrificial victims were children. The Aztecs commonly sacrificed children to Tlaloc, their god of rain; even the comparatively northerly Pueblo seem to have carried out such killings to honor their rain gods.<sup>[114]</sup> Human sacrifices such as these were never intended to feed scavengers; nevertheless, vultures still showed up, and apparently managed to glean some food from the sacrifices. Many of the knives that the Inca and Moche used to kill their sacrificial victims are adorned with vultures, which are sometimes even depicted pecking at human bodies. If someone died, the vultures would be there, whether they were welcome or not.

In other circumstances, one would suspect that the bond between vultures and death made the birds unwelcome visitors to people who were acutely aware of their own mortality; but this wasn't the case in the Americas. Some Amerindian tribes welcomed vultures *because* of their familiarity with death, not in spite of it. The Pueblos of southwestern North America were one such culture. To the Pueblos, death in any form, whether it be a result of warfare, hunting, accident, or sickness, broke the harmony of the living world and allowed the intermingling of this world and the world of the spirits. To regain the harmony of life, some sort of purification was needed, and vultures could provide such purification. The Pueblos themselves could perform rites to exorcise the spirits of the dead; but such ceremonies could be dangerous for the human participants, because some of them had to play the role of the spirits, and the great power wielded in such a role could gravely harm mere living humans. Turkey Vultures were believed to be capable of dealing with the dead with impunity; they could break contact with spirits at will, and dispel any evil resulting from the confusion of life and death. Such power explains why the Pueblos considered Turkey Vultures to be medicine men of great power, and why (in a marked contrast to most modern Americans) they welcomed vulturine visitors to their villages. Far from being dismayed at the sight of the feathered undertakers perching on their dwellings, the Pueblos believed that the mere presence of the birds could bless a village and all who lived there, keeping them safe from supernatural harm. In the Pueblo of Santa Ana, the spirit known as "Turkey-Buzzard-Man" represents a power that can shower blessings upon an entire village. He belongs to a select group of supernatural beings that includes both figures from old myths and, more recently, Catholic saints.<sup>[115]</sup> One story had it that the spirit could end a famine, but only if placated with deer killed by the Pueblo. When their carcasses were presented to Turkey-Buzzard-Man, he assured the people that they would no longer feel constant fear, and their village would be peaceful. In order to end the famine, Turkey-Buzzard-Man required tobacco, which could produce smoke that looked like the clouds of a rainstorm. When this was brought, he smoked it everywhere, in every cardinal direction; and soon enough, the storm clouds came, and the food grew again. And Turkey-Buzzard-Man took his offerings of deer.<sup>[116]</sup>

In at least one human endeavor, the New World vultures stood in exactly the same stead as their Old World counterparts: they were inextricably linked to the hunt. The Lacandon Maya say that



hunters who kill needlessly, or who leave their dead prey to rot without eating it, will go straight to vulture heaven when they die. There, they will be turned into vultures by the vulture lord Yum Chom, and from then on they will only eat the flesh of animals that have been killed needlessly and left to rot.<sup>[117]</sup> The abilities to find hidden objects attributed to California Condors and other vultures must have been inspired largely by the experiences of hunters, who were frequently led to their kills by vultures that could see their prey when they could not.



Activities that were only tenuously based on hunting could have a vulturine flavor to them. The strangest example of this would be costumes worn by the players in the traditional Mayan ballgame, a pastime which was somewhat similar to volleyball, except that the heavy rubber ball could be hit with any part of the body *except* the hands or feet. In addition to their protective gear, the players wore elaborate headdresses fashioned in the images of animals involved in the hunt ([above](#)): deer, the hunters' quarry, on one team, and vultures, the hunters' allies and competitors, on the other. Judging from Maya sculptures and paintings of the games, these headdresses were spectacular constructions: larger-than-life vulture heads, often painted in brilliant blue or yellow, with bills as long as the players' forearms, and a ruff of feathers encircling the ballplayer's crown.<sup>[118]</sup>

The often-colorful tropical vultures meshed well with the aesthetics of the Maya, who garnished virtually every facet of their society with visual splendor. Five different vultures inhabited the Central American Mayan domain, among them the incomparably hued King Vulture. King Vultures don't adapt to urban environments as some other vultures do; they rarely if ever actually alighted in the Mayan cities and villages. But they did fly over them with some regularity, and the Kings could readily be seen in the forest, perching in trees, dominating other vultures, and generally making spectacles of themselves. The *zaccuch* or *oc*, as the Maya knew the King Vulture, was widely associated with royalty. Dominant over the other forest vultures and garishly colorful, these vultures were a spectacular presence to the people of the forests. In Maya writing, a King Vulture head signifies the word *ahau*, which is both a sign for Cib, the thirteenth day of the month,<sup>[119]</sup> and an honorary title equivalent to "lord." A characteristic vulturine activity, *Colop u ich*, "Pulling out of the eye," was often used as a title of the Mayan gods;<sup>[120]</sup> and one of those gods, known to researchers as the Principal Bird Deity or Celestial Bird, seems to have originally been patterned after the King Vulture.<sup>[121]</sup> The Beak-Bird God of Costa Rica also seems to have been inspired by the King Vulture; it has the King's characteristic hooked bill and caruncle. This god is nearly ubiquitous in pre-Columbian art of the area, seen carved into everything from grinding stones to pot supports to delicate jade jewelry.<sup>[122]</sup>

Compared to the flamboyant King Vulture or the various Turkey/Yellow-headed Vultures, Black Vultures had more of an everyday, utilitarian air about them among the Mesoamericans. Although no known deities were based on the birds, they were closely linked with the rituals of human sacrifice practiced by many Mesoamerican cultures, undoubtedly because they frequently

sought to take the leavings from such sacrifices. Mayan art, like that of the Moche, sometimes depicts Black Vultures pecking at sacrificial victims, plucking out their eyes or gouging at their flesh with long bills.<sup>[123]</sup> Black Vultures were commonly seen in and around towns; they were probably the only New World vultures that had adapted to true urban environments before European settlement. When they aren't persecuted, Black Vultures aren't timid around humans; indeed, they will readily seek out settlements in their search for food. Today, these vultures will even nest on inhabited buildings; this may be a recent development, but it's equally likely that the habit dates back to the earliest cities of the Americas. While undoubtedly welcoming of the birds for their sanitary services, even the Maya had some scruples about where the vultures could wander; for one to walk near the door of a house was a very bad omen to them.<sup>[124]</sup>

The Chorti Maya of Guatemala have a unique tale that provides a glimpse into how the Black Vultures may view themselves, as opposed to the manner in which humans view them. One day, a man whose knees were bleached white came to a Chorti town. The townspeople asked him what it was he did that made his knees so dusty. The man replied that his work was that of house building; he was called from place to place to erect houses. That was how he made his living, and that was how he got his food. He was then asked where he had learned his trade; the man replied that all of his friends were masons, as was one of his brothers, and so he, too, became a mason. Ever more intrigued, the people asked him where he found the lime that he used in his mason's work; the man replied that he could make it. The people said that they would like to see him make this mason's lime, and the man agreed to show them. He then roosted on the branch of a tree and let fall something white, like lime or watery mud. His spectators were somewhat bemused at this, and accused him of lying. He wasn't really a mason, they said, and that wasn't really lime; it was only his droppings, which were white and so looked like lime. This angered the mason, who then told his ignorant audience of another meeting he had had, in a town where he had done much masonry work. Some men had wandered into the town, and after seeing all of the beautiful white houses, the men were much enamored of the mason's work. They mentioned that his own house must be very pretty to look at. He mason replied that it was, and it was also proof against the wind and cold. The men had nothing like that; they could only endure the cold and wind where they slept. They wished that the mason would come build them a house some day; but first, they wanted to know what the mason required for his meals.

He replied that he didn't eat just anything, but lived only on meat. Not all of his meat was the same, though; he would eat cows, horses, dogs, chickens, turkeys - and if he found a person lying dead, he would eat them, too. The smell was the key to finding good meals, the mason said; whatever smelled, he would eat. A cow or horse that had been dead for three days, and had begun to rot, smelled the most and so was the most delicious meal to be found. If the men wished to hire the mason to build a house for them, they would have to kill a cow or some other animal and leave it out in the sun, where it would begin to smell enough to attract the mason's appetite. And still today, the mason - the vulture - waits for anything that dies to become valuable, in terms of its smell. He doesn't eat anything that has no such value; it's the smell that he likes, and that makes his food good to eat. That, the Chorti say, is the story of the Black Vulture.<sup>[125]</sup>

Another Maya legend tells how the Black Vultures ended their lives; appropriately, the transformers of death into life didn't perish, but instead metamorphosed into something new. It was said that when a Black Vulture was very old and reaching the end of his life, he revealed his condition to his companions and then flew to the ground, searching for a hole that looked like the den of an armadillo. When he found one, he sat beside it for several days, while his fellows brought him food. Gradually, his wings disappeared, his feathers fell off, and the vulture transformed into an armadillo.

The new armadillo then entered the hole, and began its life as an armor-plated insectivore. The proof of this transformation could be seen in the heads of each animal - both Black Vulture and armadillo have bare, grayish, wrinkled craniums<sup>[126]</sup> - and in the echoed symbolization of the nine levels of the underworld of the dead in the nine bands of the armadillo's armored shell.<sup>[127]</sup>

Wonderful as this secretive vulture ritual was, the Karaja people of South America told that the King Vulture, that matchless spirit of the jungle, knew of an even greater secret: the way of eternal life. What's more, humans would have learned it, and lived forevermore, were it not for a quirk of fate. Being half-divine, the demiurge of the Karaja wasn't concerned with the issues of common people - until he fell in love with a young woman, and married her. Taking advantage of his potential, his new bride's father entreated him to ask the King Vulture for the celestial lights of the sun, moon, and stars, so that the earth would not be left in darkness.

The demiurge managed to lure the King Vulture down to earth, by that proven and time-honored stratagem of pretending to be dead. When the splendiferous bird arrived, he asked it for the celestial lights. The King Vulture granted them, and the sky was at last set alight. The demiurge then asked the King Vulture to teach the arts of civilization to mankind; to tutor them on the making of tools, the building of houses, and the crafting of artwork. The King Vulture did this, as well; after the teaching was complete, with the demiurge's entreaties answered, he began to fly away. The demiurge had no more questions to ask of the King, and bade farewell to the keeper of the great secrets; but the mortal people were still curious. As the King Vulture rose high above the land, his salmon-tinged ivory feathers glinting in the newly revealed sunlight, the demiurge's mother-in-law shouted after him, asking him to reveal the last and most important great secret: the manner in which old people could be rejuvenated. "*The way in which our lives can be made to last forever*," she called up at the vulture, "*what is it?*"

High in the sky, the King Vulture heard the old woman's question, and answered it; but by then he was flying at such an altitude, and so far away, that his reply was as faint and inaudible as gentle breeze blowing through a thick forest. The trees heard his answer, and learned the secret of immortality; some animals heard his answer, and could now live forever; but the people on the ground did not hear it. They were left watching, still mortal, as the vulture faded away into the sky.<sup>[128]</sup>



# Chapter 7

## Pariahs of Creation: Vultures in Europe

*Si vultur es, cadaver expecta.* (If you are a vulture, look for a corpse.)

-Seneca, *Ad Lucilium*

I am Revenge; sent from the infernal kingdom

To ease the gnawing vulture of thy mind

By working wreakful vengeance on thy foes.

-Tamora, Queen of the Goths, in William Shakespeare's *Titus Andronicus* (Act V, Scene 2)

Long, long ago, there dwelled in Italy two brothers, named Romulus and Remus. The twins had been fathered by Mars, the mighty god of war, and were raised by a fearsome she-wolf and a redoubtable woodpecker. For all their divine origins and wild upbringings, the brothers came to understand they were indeed men, and that it was their irrevocable duty to one day found a great city to rule over. The brothers were still unsure of the precise spot where the city's foundation should lie; both knew that it must be upon one of the seven hills along the River Tiberis; but which? After some discussion, they agreed that the hill where the augury of the gods seemed most auspicious would be chosen; and so Remus scaled the slopes of the Aventine, while Romulus climbed the hill of Palatine. Each brother watched the dawn skies eagerly, hoping fervently that the gods would favor his chosen spot. All that was needed was a sign from the divine beings, a portent favoring one site over the other; and what better place to look for such a notice than in the heavens? As was often said by those on the cusp of a vital decision, *Magna fides avium set experiamur aves*: "Great faith is put in birds, let us try the birds."

On this occasion, at least, the birds rewarded the faith put in them; for a sign soon appeared. Remus, squinting into the sky, saw six great vultures wheeling overhead. An omen of good favor; the Aventine was chosen! Unless . . .

Romulus, looking into the same sky from his hillside vantage, glimpsed twice as many carrion birds. A dozen of them, turning their wide, languorous circles in the cloud-girded realm of the deities. The gods had spoken through their broad-winged, bald-headed, hook-billed heralds. It was ordained that Rome, the Eternal City, seat of the Republic and eventually of the Empire, would lay on the Palatine.

According to this same legend of Rome's founding, Remus later mocked the location of the new city with such disrespect that Romulus killed him, as brothers are wont to do. Nevertheless, this odd story brings up a few interesting points.

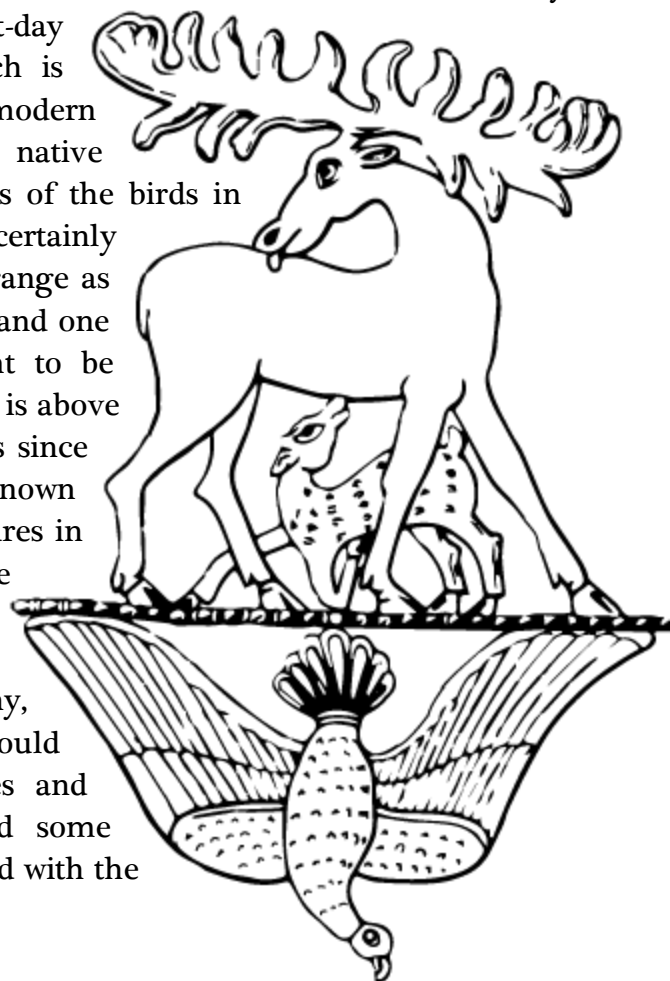
First, the idea that vultures are omens for events or decisions beyond the ken of humans is a very old one, having existed for some thousands of years. Romulus and Remus may have been the most famous persons to look to the birds for guidance in matters where they couldn't trust their own judgment, but they were neither the first nor the last to do so.

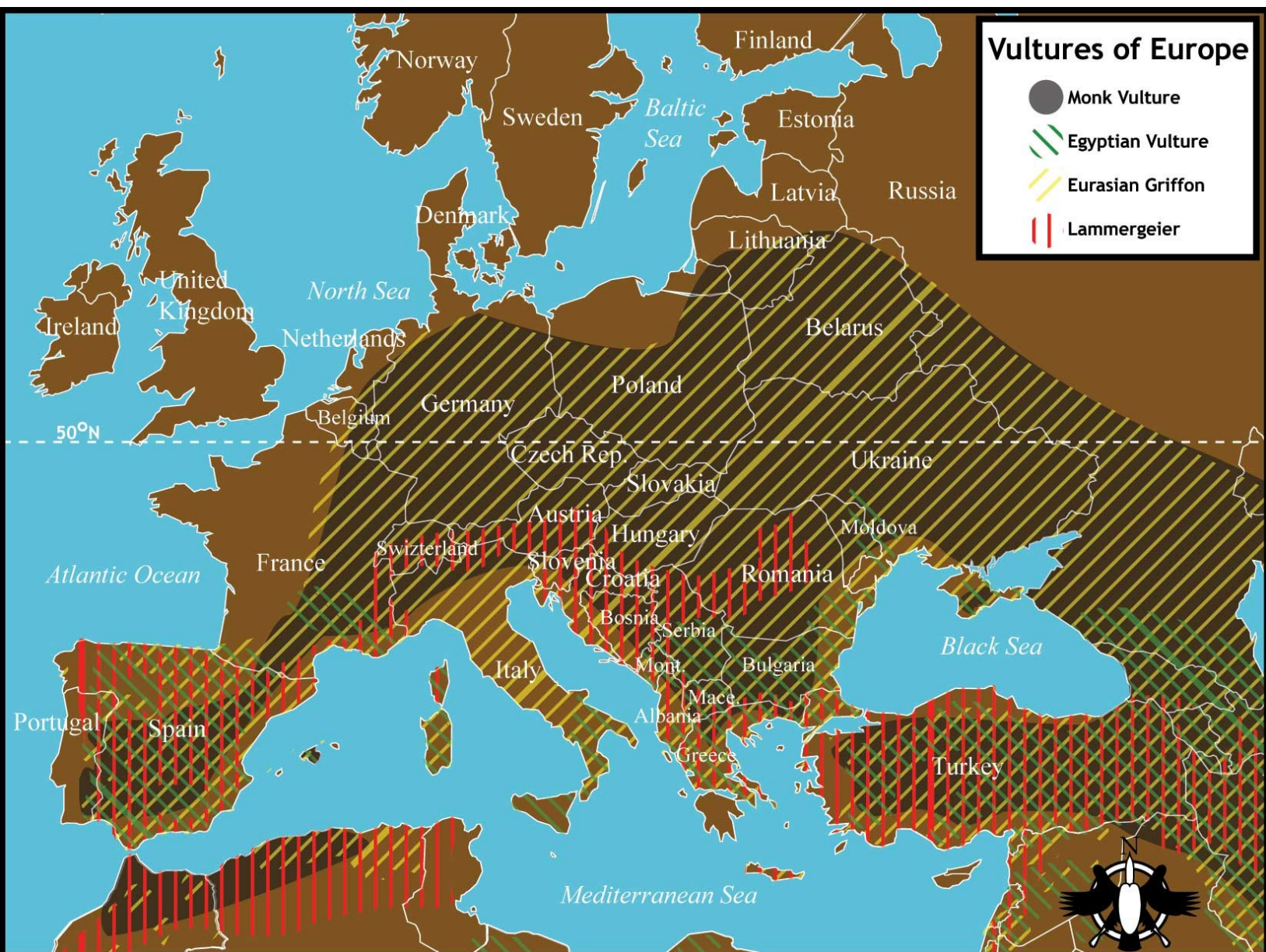
Second, it is ironic that an animal so closely associated with warfare as the vulture would preside over the founding of one of the most warlike of empires, even if only in legend.

Third, considering that Romulus and Remus welcomed their appearance as a harbinger of good fortune - and as an unassailable directive from the gods - then vultures weren't always so utterly despised in Europe as its more recent cultural attitudes and social mores would seem to indicate.

You see, vultures generally haven't been well looked upon in European culture; they were, and sometimes still are, vilified as abominations, tools of the devil, and enemies of all that was good and pure. Historically, vultures in Europe have been hated, scorned, feared, and held in utter contempt; and, largely as a result of those attitudes, have been extirpated from most of the continent. Considering that Europe's cultural diaspora traveled further than that of any other region (at least until the post-World War II era), due to the activities of empires from the *Pax Romana* to the *Pax Britannia*, the mystery of why the "vulture-as-greedy-and-cowardly-winged-demon" stereotype has become so widespread in the modern era is no longer very mysterious.

Europe is not one of the world's more vulture-rich regions. Today, it has a mere four native species of vulture: the members of the great Eurasian vulture guild, the Eurasian Griffon, Monk Vulture, Lammergeier, and Egyptian Vulture. Nowadays the European ranges of all four species are often termed "Mediterranean," in the sense that the birds are only rarely found more than about 200 miles (320 km) from the coast of that sea (or, in eastern Europe, from that of the Black Sea). Yet there is a great deal of historical and archaeological evidence that into historic times, all three of the large vultures occupied much more extensive ranges, especially to the north. The fossil record of the Pleistocene has already demonstrated that vultures were well able to range into northern Europe even in very trying climatic conditions, and numerous bones of Eurasian Griffons and Monk Vultures dating to the post-ice age era have been found far from the Mediterranean, in central Germany.<sup>[1]</sup> Well into medieval times, the range of the Griffon covered most of Europe, not just the southerly Spanish and Greek climes that the snake-necked bird calls to mind today;<sup>[2]</sup> and we'll see later in this chapter that 13th-century Germans were apparently well acquainted with both Griffons and Lammergeiers. Throughout the 19th century, there were intermittent reports of Eurasian Griffons and Monk Vultures being spotted, shot, or captured in places like Denmark, in Russia near Moscow, northern Germany, Holland, Poland, and East Prussia (the area of present-day Kaliningrad),<sup>[3]</sup> all located at latitudes above 50° N, which is generally considered to demarcate the northern limit for modern vultures. Both the Dutch and Danish languages possessed native names for different vultures,<sup>[4]</sup> which suggest that sightings of the birds in such northerly climes, though not necessarily common, certainly weren't rare. In Russia, the Griffons were said to regularly range as far north as 59°, about the same latitude as St. Petersburg,<sup>[5]</sup> and one report from the 1840s speaks of birds that were thought to be Lammergeiers nesting in Siberia east of Lake Pyasino, which is above the Arctic Circle at almost 70° N<sup>[6]</sup> - though that report has since been dismissed as "most probably erroneous."<sup>[7]</sup> Several known pieces of ancient Russian art ([example at right](#)) depict vultures in association with Moose (Eurasian Elk), mammals which are normally found only above 50° N. Even in the last couple of decades, young Lammergeiers reintroduced into the Alps have managed to wander to the North Sea coast of Germany, some 500 miles (805 km) from their usual haunts.<sup>[8]</sup> It should thus be borne in mind that, outside of the British Isles and Fennoscandia, most of the peoples of Europe once had some familiarity with wild vultures, even if that familiarity vanished with the birds long ago.





The quartet of European vultures are quite varied, from the huge, solitary Monk to the gregarious Eurasian Griffon, the small, versatile Egyptian and the ever-atypical Lammergeier; there's relatively little overlap in form or function among these birds. Then why has the “scrawny-necked scavenger” image of the birds, which can really only be applied to the Griffon (and then only loosely), been so prevalent for so long in European thought? Why has it been so difficult throughout the centuries to find a sympathetic description of a vulture written or spoken by a European? And, how did these innocuous, useful, even entertaining creatures come to be so loathed in the first place?

That last question can be answered right off the mark: they *weren't* loathed in “the first place,” as I like to call the Neolithic Period. The cultural history of vultures in Europe can be traced that far back in time, when the Vulture Cult beliefs centered in the Near East also claimed many adherents throughout southern Europe. The Cult was an important element of the religions of Old Europe, the defining cultural complex of the region during the era between the end of the ice ages and the invasion of the continent from the east by people of the Indo-European cultural tradition. The Old European cultures seem to have been prevalent in most areas until 3,500 BCE, and in some places persisted until 2,500 or even 1,500 BCE.<sup>[9]</sup> In the main, the Old European belief system was similar to the Neolithic beliefs of the Near East already described [in Chapter 3](#). Old Europeans celebrated the



perceived earthly and feminine aspects of their world far more than would their Indo-European successors, who were more concerned with the heavenly” and masculine traits of the world; and their beliefs were firmly rooted in the cycles of life, death, and rebirth. As conspicuous participants in and drivers of those cycles, vultures figured heavily in Old European symbolism.

Much like their counterparts in the Near East, adherents of the Vulture Cult in Europe held that deities or spirits of vulturine form were intimately associated with both death and motherhood. Evidence for both associations can be found in curious forms. A number of caves in southwestern Europe contain paintings of large birds that are most likely vultures, with the same comb-like wings seen on the vultures on the walls of Çatal Höyük.<sup>[10]</sup> The scholar Marija Gimbutas believed that the widespread rural European custom of women and their infants wearing comb-like pendants after childbirth dated to Neolithic times, when it was thought necessary to appease the death/vulture deities by wearing likenesses of them during the time when they were most likely to take vulnerable lives.<sup>[11]</sup> Vultures were an important consideration at the end of a person's life as well; it's thought that Europeans commonly practiced exposure as a funerary ritual at least until the first millennium BCE, though there's less direct evidence for the practice to be found here than in the Near East. Still, some burials dating from the fifth millennium BCE contain bones that appear to have been first exposed to scavengers to remove them of flesh, and only afterwards collected, arranged by anatomy, and buried. Other communities maintained communal burial places where the bodies of many people were exposed to scavengers. After a certain period of time had elapsed or a given number of bodies were deposited, the communal spots and the bones that they contained were covered over with long barrows, mounds built of soil or stone. Those communities that instead constructed large stone tombs, built to hold the bones of many people over centuries, are also thought to have exposed the bodies to scavengers first, and only afterwards consigned them to the tombs. It seems that in some European communities only the bones of certain people were dignified with burial in tombs or barrows, and other skeletons were either abandoned where they had been exposed or were buried elsewhere.<sup>[12]</sup>

To this day, goddesses in vulturine form are still potent figures in European folklore; but, as with other prominent figures of Old European belief, the successors of the Old Europeans have transformed them from benevolent (or at least ambiguous) beings into terrifying, satanic figures. As the passing centuries transformed them, the deities kept their powers of flight, but their powerful hooked bills became hooked noses, and their brush-like wings became brush-like flying vehicles - specifically, another symbol of femininity: household brooms. Throughout these changes, the only trait that remained unmodified was the ancient, wizened head - and I'm sure the reader can see where this is going. Yes, it seems that the European witch, villainess of countless stories and now one of the

most easily recognized mythical characters in the world, was originally a vulture; or rather, a supernatural figure in vulturine form.<sup>[13]</sup>

Otherwise, echoes of the Vulture Cult have all but vanished in most of Europe, but a few can still be found in those cultures that retain a strong heritage from Old European times, notably that of the Basques of Spain and France. The most powerful goddess in the native religion of the Basque people, Mari, the Lady of Amboto, often took the form of a vulture. She especially liked to do so



when flying from the sacred caves where offerings of food were left for the dead.<sup>[14]</sup> While the goddess with whom the vultures were associated is no longer worshipped as such, she is still respected and feared. A Spaniard named Manuel de Ugarriza recounted in 1922 that a Basque shepherd had (unusually) constructed a new hut for himself near one of these sacred caves. Although the shepherd was a Christian, he had also been brought up in a cultural tradition heavily influenced by Old European beliefs; and so he was afraid to be so close to "the dwelling place of the Goddess." In order to minimize her power, or perhaps even drive her away,

he fixed crosses and blessed candles on either side of the mouth of the cave. But then a flock of vultures came, and alighting on the roof of his hut, told him that he was to take the blessed objects away from the cave. They continued to insist until the shepherd, fearing some act of vengeance, gave in to their demands.<sup>[15]</sup>

There's no explanation of just how the vultures managed to tell the shepherd anything; but this man had no trouble believing that they were in fact communicating with him.

Different and usually more hostile attitudes towards vultures are part of the legacy of the Old Europeans' successors, the Indo-Europeans, who moved into the continent during the third millennium BCE. It would probably be a mistake to say that Old Europe was "conquered" by the Indo-Europeans; the transition from one cultural complex to another took place over millennia, and the beliefs of the two traditions mingled and melded for a long time. Much as European Christianity would later incorporate earlier pagan beliefs into its traditions and dogma (though not always without friction), the Indo-European sky deities coexisted with the Old European earth gods and goddesses in many classical societies. In terms of numbers of believers and degree of influence, the sky gods undoubtedly won out in the end; but for centuries after the supposed triumph of these new beliefs, the Old European deities continued to survive in one form or another.

Along with their religion, the Indo-Europeans brought with them their language. Thought to have originated somewhere in the steppes of western Asia, around four thousand years ago speakers of the ancestral Indo-European language migrated south into India, where their tongue evolved into Sanskrit; and west into Europe, where separate linguistic branches eventually became Greek and Latin, as well as the Germanic and Celtic language families.<sup>[16]</sup> No fewer than four different Indo-European root words would contribute to forming the common names for vultures in European languages. The two most important are *\*gultur* (the curious history of which was already described [in Chapter 4](#)) and *\*uel*. The latter made its way into Latin as the verb *vellere*, meaning "to wound" or "to tear," and a multitude of related words. It's generally believed among linguists that the Latin *vultur* derives exclusively from *vellere*; but considering the differences in pronunciation between the two words, it seems much more likely that at some point in Latin's early history - perhaps after contact with the Sanskrit-speakers of India - *vellere* was combined with *\*gultur* to produce *vultur*.<sup>[17]</sup>

The influences of both the Old European and Indo-European cultures are readily seen in the oldest of the classical European societies. Ancient Greece was blessed with all four of the European vultures, and they were evidently much more numerous in the classical era than they are today. That the contemporaries of men like Socrates and Alexander the Great had a deep-rooted connection and fascination with wildlife may seem surprising today, as the ancient Greeks are now commonly pictured as urban people who spent their waking hours philosophizing, watching theatre, and raising columns, without ever dirtying their togas in the wilderness. They did spend much time with philosophical and artistic pursuits (and with fighting each other), but they also displayed a familiarity with the natural world that would be the envy of many later peoples.

Of all the vultures' abilities, that of appearing immediately and apparently out of nowhere during or after battles most fascinated these ancient observers. Their gods were not above using this unique skill for themselves, as when Homer described Athena and Apollo (both deities of the city-state of Athens) watching a battle in the epic of the *Iliad*: "Then the twain, Athena and Apollo of the Silver Bow, sat on a high oak of Zeus who bears the Aegis, like vulture birds delighting in the heroes."<sup>[18]</sup> Earlier, Athena had departed for the battle at her father's bidding, in Homer's words "[leaping] through the air of heaven like a long-winged lammergeier with a shrill scream."<sup>[19]</sup> The Lammergeier's massive size and otherworldly appearance never fail to impress even an experienced observer; it isn't difficult to understand how the sudden appearance of such a bird could be viewed as an incarnation of a god. The bird's Greek name, *phene*, is thought to have originally stemmed from the word *phaino*, "appear."<sup>[20]</sup> Athena's vulturine transformations were part of an established Old European tradition. In ancient Crete, vulture imagery was an important aspect of the Minoan goddess of death, who was often depicted with a vulture's head and wings. This goddess is believed to have survived into classical Greek times in the form of Athena. Not only was Athena's name derived from the pre-classical Mycenaean language, rather than a later Indo-European tongue,<sup>[21]</sup> but she was said to take delight in transforming into a vulture, as described in the *Iliad*. Athena also commonly appears in the company of vultures and their nocturnal equivalents, the owls, on vases and in statuary.<sup>[22]</sup>

The vultures' perpetual attraction to the dead, or to the apparently dead, was a common motif of Greek tales, and could prove very useful to the heroes of such stories. Among the narratives recorded by the Greek mythographer Konon, whose work was roughly contemporaneous with the life of Jesus, was that of Apollo Gypaieus. In this story, two shepherds were tending their flock in a pasture at the foot of Mt. Lyssos, near the city of Ephesus in Asia Minor. While wandering about the pasture, one of the shepherds noticed a deep, inaccessible cave, at the bottom of which hung a beehive, dripping with honey. He rushed and told his friend, and together they hatched a plan whereby one of them would climb into a large basket, which the other would lower down to the hive with a rope. This was done, and upon reaching the hive, the nascent spelunker found not just honey, but gold; enough of it to fill the basket three times over. Three times it was filled, and the treasure pulled up to the pasture. The shepherd in the cave was about to climb into the basket himself, when it occurred to him that his companion might now have malice in mind. He dropped a large stone into the basket instead, and called for the basket to be pulled up. The basket was hoisted almost to the rim of the cave; but, just as it reached the top, the shepherd who had hoisted it deliberately let go of the rope, letting it crash to the floor of the cave. The spelunker's intuition had been correct.

Believing that the other was dead, the shepherd buried the gold in a safe place, then attempted to think of a plausible excuse to explain his vanished companion. Meanwhile, the boy stuck in the cave believed himself doomed to starve and abandoned by all except the gods – but, after falling asleep, the war god Apollo appeared to him in a dream, and commanded him in no uncertain terms that he must cut himself many times with a sharp stone, and then lay still. No matter how bizarre their commands, one doesn't ignore the gods. The shepherd duly slashed himself almost to ribbons, then lay down as motionless as the dead; and lo and behold, a number of vultures descended into the cave, thinking the still, blood-spattered figure to be a corpse. After circling around him for a time, they fastened their talons in his clothes and hair and lifted him out of the cave with them, carrying him back to the pasture where he had first discovered the cave. After setting him down, the birds saw that their prize was very much alive, and hastily departed. Free at last, the boy made his way back to his village, where he informed the magistrate what had happened. The would-be murderer was punished; he was tortured into giving up the location of the buried gold. Half of the great haul was



awarded to the spelunker, and the other half was declared sacred to Apollo, who had saved him. The boy who had been rescued became very wealthy, and on the peak of Mt. Lyssos he erected an altar to Apollo. He named the altar *Gypaieus* ("Vulture") in memory of what had happened at the base of the mountain.<sup>[23]</sup>

About three centuries after Konon, another Greek with the very Latin name of Antoninus Liberalis compiled a collection of Greek transformation tales under the title of *Metamorphoses*.<sup>[24]</sup> Among these was the story of Aegypius and Neophron, apparently originally told in a now-lost work by the earlier Greek writer Boeus. The tale begins with a pious man named Aegypius, who lived on the furthestmost borders of Thessaly in northeastern Greece. Aegypius was beloved by all, especially the gods, who considered him a generous and just man; but still he had no wife. He eventually fell in love with a widow named Timandre; and though his piety and goodness failed to sway her, his riches did the trick. Soon he was visiting her house regularly, to enjoy the lusty embraces of this older woman. Timandre had a son of the same age as Aegypius, named Neophron; and Neophron was none too happy with this stranger who had usurped the attention of his mother. He thus devised a trap for him.

With a bit of detective work, Neophron discovered that Bulis, the mother of Aegypius, was the same age as his mother, and was somewhat dissatisfied with her husband. He decided to seduce her, and offered her many gifts to persuade her to join him in his house. By feigning approval of the visits of Aegypius, he had learned from his mother when Aegypius was going to visit her that day; and being a clever man, had managed to convince her that her presence was sorely needed elsewhere at that time. He promised her that he would inform Aegypius of her absence. Instead, he brought Bulis, the mother of Aegypius, into his house; and having guided her into his mother's bed, he left her there, saying he would return later. Bulis, none the wiser, soon fell asleep.

No sooner had she done so than Aegypius arrived at the house. Upon seeing the form of a nude woman in Timandre's bed, he thought he had found his lover, and he treated her accordingly. He fell asleep after the act was done; just as Bulis awoke and, to her horror, recognized who had raped her in her slumber. In her revulsion, she stumbled out of bed and picked up a sword, intending to mete out the standard punishment for incest: to stab her son's eyes out. She would then kill herself to atone for her part of the crime. But the gods had been watching all of this transpire; and here they interceded. Apollo wakened Aegypius from his sleep, so that he could see the results of his lust and of Neophron's sinister plan. Crying with shock and fury, Aegypius looked to heaven and prayed that he, and everyone else involved in the affair, should vanish from the earth.

The god of gods Zeus heard this prayer, and granted it, after a fashion. Rather than obliterating them, he turned all of them - Aegypius and his mother Bulis, Neophron and his mother Timandre - into birds. Timandre, the most blameless of the four, became a small songbird. Bulis was morphed into a heron; and Zeus intoned that from then on, she would eat nothing that grew from the ground. Instead, she would peck out the eyes of fish, birds, and snakes, since she had been so eager to stab out the eyes of her own son. Aegypius and Neophron were both transformed into vultures, but of vastly different kinds. Neophron became a small, white bird of deserts and dry mountains; Aegypius became a large, blackish bird of plains and woodlands. And to avoid any further trouble, Zeus ordained that none of these birds would ever meet each other again; they would never be seen together, in the same spot.<sup>[25]</sup>

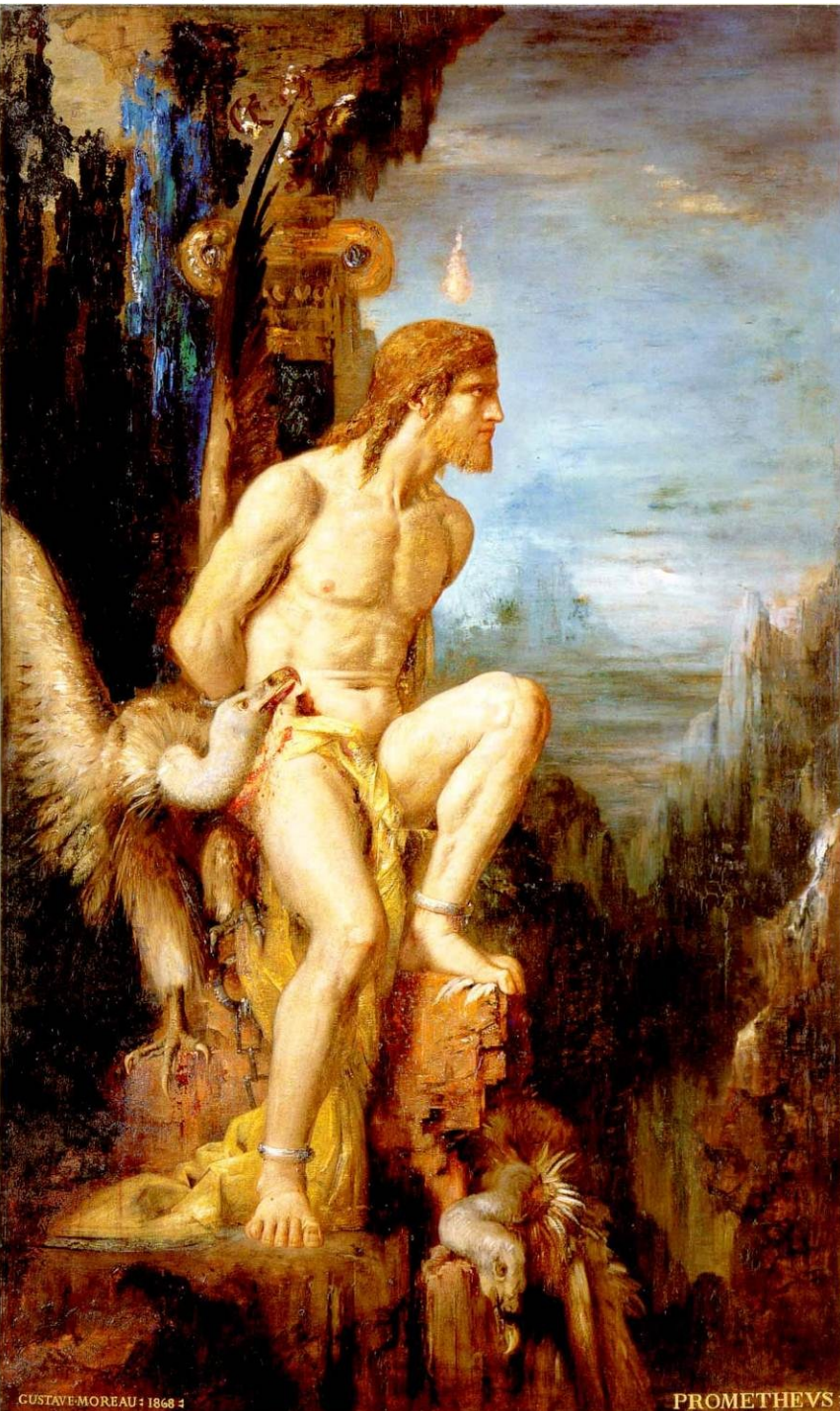
This particular tale has an odd though notable postscript. Although the stories told by Antoninus Liberalis are little known today, they were quite popular (along with all other things ancient Greek) with the European Philhellene movement of the early 19th century, so much so that

when the known vulture species were taxonomically rearranged in 1809 by the French ornithologist Jules-César Savigny, he bestowed the genus name *Aegypius* upon the Monk Vulture,<sup>[26]</sup> and *Neophron* on the Egyptian Vulture.<sup>[27]</sup> As the ancient Greeks maintained that the *Aegypius* vulture was "half-way between a vulture and an eagle," a fair description of the Monk, and that it wasn't often seen together with the *Neophron* vulture, which it isn't, it seems that he bestowed the right names upon the right birds.

And yet, the most historically durable manifestation of ancient Greek vultures depicts the birds not as midwives, nor goddesses, nor even incestuous philanderers; but as monsters - harpies, to be specific. Harpies were quite common in Greek folklore, and were described as having the bodies, legs, and wings of vultures, and the heads, hands, and breasts of women. These chimerical creatures probably originated as twisted interpretations of Old European spirits with vulturine and feminine traits.

The harpies were rumored to be rapacious, cruel, and smelly thieves and scavengers, with a particular hatred for men. A king named Phineus suffered the worst at the harpies' crooked hands; he very nearly starved to death because the monsters, sent by Zeus, stole and devoured every meal he managed to prepare as he was stranded on an island. The harpies were eventually driven away by Jason and the Argonauts; Pliny the Elder later said that they were seen in India. The ancient Greek writers Homer and Dionysius both occasionally identified Lammergeiers as *harpes*; a clear case of mislabeling, since the harpies' behavior is nothing like that of Lammergeiers. But the harpies' boldness and thievery is very reminiscent of kites or gulls,<sup>[28]</sup> which in urban settings may literally steal food out of a diner's hand.

It's understandable that the Greeks would attribute the powers of vultures to certain mythical monsters; after seeing vultures rip into a carcass it's all too easy to imagine what a wonderful and cruel instrument of punishment one of the great birds could be. Certainly the ancient Greeks could imagine this; among the most popular of the Greek legends is the story of Prometheus ([left](#)), the Titan who stole fire from the gods and gave that precious gift to man. For this crime, Zeus chained him to a rock and condemned him to everlasting torment by commanding a Eurasian Griffon





to eat his liver, only for it to regrow overnight and be eaten anew each day, for all eternity.<sup>[29]</sup> After 30, 1,000, or 30,000 years (depending on who told the story), the hero Heracles journeyed to the Caucasus Mountains as part of his famous twelve labors. When Heracles came upon Prometheus and the vulture, he pleaded to Zeus to pardon the Titan. Zeus granted the pardon, and Heracles wasted no time in shooting the vulture through the heart with an arrow and freeing Prometheus. It was said by the Greeks that the inhabitants of the Caucasus regarded the Griffon as the enemy of humanity from then on, deliberately burning the vultures' nests with flaming arrows and setting snares to kill the birds.<sup>[30]</sup> If this was true, then the mountain people were shamed by the more forgiving nature ascribed to the freer of Prometheus, Heracles, who ever after held the Griffon to be sacred.

Although the ancient Greeks were clearly familiar with many aspects of vulturine behavior, the nests of the birds were all but unknown to them, as they were usually located in remote areas. So mysterious were the vultures' abodes that some doubted whether the carrion birds nested at all; the naturalist Aelian subscribed to the ancient Vulture Cult belief that all vultures were female, were impregnated by the wind, gave birth to feathered offspring instead of laying eggs, and so had no need for nests.<sup>[31]</sup> He said as much in his work *The Nature of Animals* (written in the 2nd-3rd centuries CE), although he might have changed his mind if he had read Aristotle's views on the matter in *History of Animals*:

The vulture builds its nest on inaccessible cliffs' for which reason its nest and young are rarely seen, and therefore [the ancient historian] Herodorus . . . declares that vultures belong to some foreign country unknown to us, stating as a proof of the assertion that no one has ever seen a vulture's nest, and also that vultures in great numbers make a sudden appearance in the rear of armies. However, difficult as it is to get a sight of it, a vulture's nest has been seen. The vulture lays two eggs.<sup>[32]</sup> [Translated by D'Arcy Wentworth Thompson]

Where this vulture's nest was seen, and by whom, remains a mystery. Later in *History of Animals*, Aristotle mentioned that "the vulture has its nest on inaccessible crags, and is found only in a few localities. The female lays one egg as a rule, and two at the most."<sup>[33]</sup> It's tempting to picture Aristotle himself scaling some high, remote cliff in search of a vulture's nest, but this wouldn't quite jibe with what is known of his character. Regardless, there seems to have been some confusion over the number of eggs laid; although the latter statement that one egg was laid as a rule suggests that the nests found were those of Griffons, the former statement that the vulture laid two eggs suggests the nest was that of an Egyptian Vulture. Aristotle surely would have mentioned if the nest belonged to the other European vulture with a double-egg clutch, the Lammergeier.

The most unvulturelike of vultures was an object of fascination for the Greeks, as it has been for all later Europeans. The Lammergeier was known to them by at least three names; Homer called it *phene* or *aigypios*, but in the first century BCE, Dionysius of Halicarnassus preferred to call it the *harpe*, typically translated as "harpy." Confusion with the mythical bird-hags aside, he gave an excellent description of the bird and its habits:

Harpies are rarely seen, for they inhabit the most precipitous cliffs. They nest in rocky ravines. Their cheeks and chins are feathered, which form a beard which extends to the neck. And the beard is the harpy's unique characteristic. It alone of birds feeds on stones and the bones of beasts long dead. If they can gulp it down they quickly and easily swallow whatever comes to hand, but if it is too big they pick it up in their talons, soar aloft and let it fall on the rocks so that they may smash and eat it.<sup>[34]</sup> [Translated by John Pollard]



This portrayal of the species is more accurate than some written centuries or millennia later.<sup>[35]</sup> Even Dionysius's seemingly implausible comment that Lammergeiers feed on stones likely had a basis in fact, as it's entirely possible for bone-eating vultures to obtain nourishment from calcareous (calcium-enriched) stones, and Lammergeiers aren't choosy about what they swallow in any case. In the 19<sup>th</sup> century, hunters dwelling near Lake Baikal in Siberia were reported to catch Lammergeiers by soaking bite-sized stones with blood, then leaving in piles for the vultures to swallow. Once the birds took the bait, they were too heavily ballasted to fly, and could easily be captured.<sup>[36]</sup>

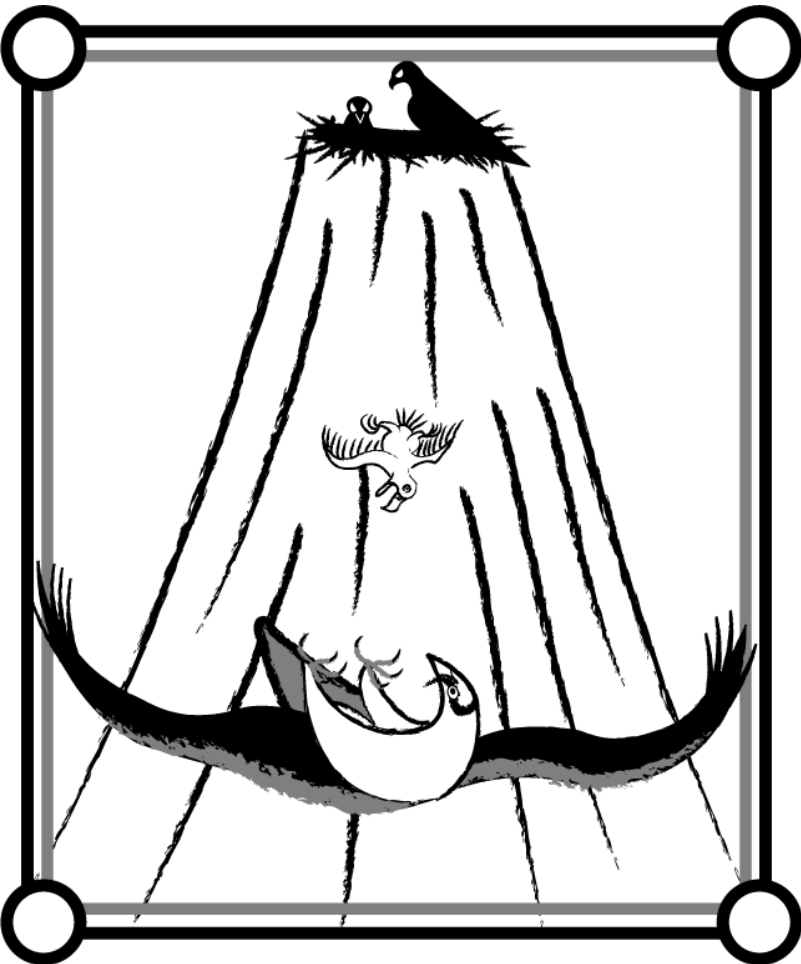
The Greeks thought Lammergeiers were especially attached to their offspring; Homer wrote in the *Odyssey* of the heroes Telemachus and Odysseus "[weeping] aloud, more ceaselessly than birds of omen, crooktaloned lammergeiers and such, whose nestlings the locals have taken away before they fledged." Aeschylus described the war cry of the Greeks in his play *Agamemnon* as, "Like

lammergeiers wheeling with beating wings, high above their eyrie, in grief for their missing offspring."<sup>[37]</sup> The vultures might even find room in their hearts for the young of other raptors; in Aristotle's *History of Animals*, it was said that:

The so-called phene, or lammergeier, is fond of its young, provides its food with ease, fetches food to its nest, and is of a kindly disposition. It rears its own young and those of the eagle as well; for when the eagle ejects its young from the nest, this bird catches them up as they fall and feeds them. For the eagle, by the way, ejects the young birds prematurely, before they are able to feed themselves, or to fly. . . . The young birds fight with one another, to secure a morsel of food or a comfortable position, whereupon the mother-bird beats them and ejects them from the nest; the young ones scream at this treatment, and the phene hearing them catches them as they fall.<sup>[38]</sup>  
[Translated by D'Arcy Wentworth Thompson]

In short, the Lammergeier was believed to raise the rejected young of eagles; although, from a behavioral standpoint, this description of how a Lammergeier approaches eagle chicks in vocal

distress and "catches them as they fall" reads more like an account of the vulture actually preying upon young eagles that had fallen out of their nests, by accident or due to the attacks of their siblings. In modern times, Lammergeiers have been observed to launch apparent predatory attacks on the chicks of other birds of prey;<sup>[39]</sup> perhaps Greek observations of such events led to legends that Lammergeiers carried eagle chicks back to their eyries and raised them there. Likewise, in his *Natural History*, Pliny the Elder stated that Lammergeiers were originally parented by eagles, who rejected by them out of "envy," and then "received by the kindred breed, the bearded eagles, who rear them with their own." (Book X, Chapter IV) Elsewhere in *History of Animals*, Aristotle mentioned that eagles laid three eggs, hatched two, and cared for only one; and that, "As the young ones grow, the mother becomes wearied with feeding them and extrudes one of the pair from the nest. . . . The phene is said



to rear the young one that has been expelled from the nest." (Book VI, Chapter 6) This belief survived in some form into late medieval times; in the 13th century, the German monk Albertus Magnus wrote that rejected eaglets were said to be gathered up and raised by a bird called the *fehīt* or *fulica*, both of which were probably corrupted forms of *phene*.<sup>[40]</sup>

Much like the *phene*, the people of Rome were all-too-willing to appropriate the creations of others. From the founding of the Republic to the fall of the Empire, the Romans admired the culture of ancient Greece, copied it endlessly, and were ever ready to concede the superiority of much of it to their own. And yet, the passing of the torch of Western civilization to Rome meant that much Greek myth would be lost, or drastically changed to fit the Roman viewpoint. Nowhere was this truer than in the views of Romans regarding vultures - and eagles, with which the carrion birds were more or less inextricably linked and perpetually compared from then on.

The tangled and intertwined history of vulture and eagle in Rome dates back to Etruscan times, before the founding of the Republic. As a city, Rome originated in the 6th century BCE, a time when Old European beliefs still had considerable influence in Italy. This influence is made clear by the founding legend of Rome told at the beginning of this chapter, in which the brothers Romulus and Remus were guided to the future site of the city by vultures. The legend of the city's founding was cherished by Romans for many centuries, and during Rome's earliest years, vultures may have had special significance to its people. During a 20<sup>th</sup>-century archaeological excavation of the most ancient part of Rome, the Forum, several bone fragments of a vulture were discovered among the remains of what appeared to be a large-scale sacrifice, including small statuettes and various bones of domestic animals. The sacrificial remains surrounded the base of a funereal monument which was supposed to mark the burial of either Faustulus, the adopted father of Romulus; or of Romulus, the Founder of Rome himself. The vulture bones, belonging to the wing of a Eurasian Griffon or a Monk Vulture, showed the marks of deep incisions, suggesting that a portion of the wing had been chopped off and added to the sacrificial pile in honor of the deceased.<sup>[41]</sup> The find rather strongly suggests that at this early date, vultures were indeed sacred in some sense; at least sacred enough for their wings to garland the grave of the most important man in Roman history.

The vulture-watching with which Romulus and Remus made their fateful decision in the founding legend may, loosely, be based upon fact. Like the people of many other ancient cultures, the Romans believed that it was possible to prognosticate by watching birds, which were believed to communicate the will of the gods by their actions. Centuries before rationalism became a popular philosophy, *augury* ("bird talk") was considered both an art and a science, as widely respected and practiced as astrology or any other kind of divination. Pre-Christian Rome maintained several colleges of priests who conducted the appropriate rituals in order to keep the gods placated, and who passed laws to keep Rome strong. The most influential of all these colleges was that of the *augures*, the nine men who interpreted the will of the gods by watching the birds. Most every important action taken by the Roman government, up to and including declarations of war, was influenced by the interpretations of the *augures*, ensuring that they wielded considerable power in Roman society. Perhaps inevitably, they also proved to be vulnerable to bribery when pronouncing their suggestions and predictions, the *auspices*.<sup>[42]</sup>

The *augures* divided birds into *oscines* ("talkers"), which included vocal birds like ravens, crows, and owls; and *alites* ("fliers"), which included large soaring birds like vultures and eagles. In his famed work *Parallel Lives*, the Roman historian Plutarch wrote that "the Romans, in their divinations from birds, chiefly regard the vulture," because

all other birds are, so to say, never out of our eyes; they let themselves be seen of us continually; but a vulture is a very rare sight, and you can seldom meet with a man that has seen their young; their rarity and infrequency has raised a strange opinion in some, that they come to us from some other world; as soothsayers ascribe a divine origination to all things not produced either of nature or of themselves.<sup>[43]</sup>  
[Translated by John Dryden]

Though the *augures* might be expected to have some familiarity with the birds whose actions brought the dictates of the gods, their practical knowledge of vultures in particular seems to have been distinctly unimpressive. In Pliny the Elder's *Natural History*, it was recorded that Umbricius, the "most learned augur of our age," was of the firm opinion that vultures "lay thirteen eggs [!], but use one of them for cleaning the remaining eggs and the nest and then throw it away."<sup>[44]</sup> It was also popularly believed that "great vultures" came into the world as the offspring of smaller vultures, and that the larger vultures couldn't breed at all, not even asexually.<sup>[45]</sup> But no matter; as far as vultures and other *alites* were concerned, their importance in augury lay in where they appeared, in what numbers they were present, the direction they were flying, and the height at which they flew. Any one of these signs could be interpreted to the exclusion of others. Above all, the appearance of large numbers of vultures at one time and place seems to have been crucially important to the Romans; and if those numbers echoed the quantities of birds seen by Remus and Romulus in the founding legend, so much the better. When Octavius, the adopted heir of Julius Caesar, was elected consul in 44 BCE, the *augures* claimed that six vultures were seen overhead at the event; and when the young man addressed the veteran soldiers who owed allegiance to his assassinated forebear, a dozen more were of the birds were reportedly in attendance.<sup>[46]</sup> (Of course, the *augures* may have fudged the numbers a little.) This clear sign of favor from the gods doubtless helped Octavius to win favor from the people, even as he became Caesar Augustus and as Rome transformed from a Republic to an Empire under his despotic rule.

Although the practice of augury would remain current in Rome for many years, the circumstances in which the founders of Rome had practiced it already looked dated in the early Republic. Romulus and Remus were said to have been fathered by the god Mars, a deity best known as a god of war. Today, few people are aware that he ever had any other significance; but he was originally a god of fertility and renewal, just as the vultures were symbols of rebirth to the Old Europeans. It was only reasonable, then, that the vulture, along with the other creatures that figured in the story of Romulus and Remus, was closely associated with Mars in Roman religious belief. However, the Romans cast aside Mars in favor of another god as their "chief": Jupiter, a god of the sky, a deity of lightning, rain, and the sun. We could speculate to no end upon the reasons why Jupiter was favored over Mars – who, according to the legend of Rome's founding, was essentially solely responsible for the city's existence – but in our tale, it's relevant only to note that Jupiter, unlike Mars, had no real feminine or earthly qualities. He was of the sky, not of the earth. Marija Gimbutas has made the interesting point that Old Europe's sacred images were "those of the earth's vitality and richness"; in contrast, the symbolism of the sky that was so important to Indo-Europeans and their cultural descendents was of little consequence.<sup>[47]</sup> The distinction is an important one, as it emphasizes the very real differences between what might otherwise appear to be just a couple of different varieties of paganism. During the early years of Rome, when the Old European beliefs still commanded many adherents, the cleave between them and the adherents of the Indo-European sky gods must have been at least as deep and serious as the cleaves in our time between Catholic, Eastern Orthodox, and Protestant Christians, or between the Shi'a and Sunni sects of Islam.



Even more pertinently, the distinction between Old European and Indo-European beliefs partly explains why the cultural development of vulture and eagle so dramatically parted ways in ancient Greece, and even more so in ancient Rome. The vulture was a sacred figure to the Old Europeans, because of its ability to turn death into life; and likely also because, unlike most eagles, vultures tend to spend much time on the ground, rooted to earth. Eagles were perceived to be more aerial than vultures (although they actually spend about as much time perched as vultures do, just not on the ground), and much more predatory. The ancient Greeks believed that Triform Artemis, their pantheon's most blatantly Old European goddess, hated eagles, because those predators of the skies killed earthly creatures of many kinds.<sup>[48]</sup> In contrast, the Greek pantheon's most important and powerful deity, Zeus, held eagles to be sacred. Zeus was not a figure that any Old European would idolize; he was a sky god, a wielder of thunder and lightning, and deeply masculine. The Greeks often told a story of a great king, Periphas, who despite his privileges and power insisted on paying homage not to Zeus, but to Apollo, the war god, a more Old European figure. Displeased with this lack of respect, Zeus retaliated by transforming Periphas into an eagle. In that form, he would still have privileges; he would be the king of birds, and only the eagle had the task of guarding the sacred scepter of Zeus, and the right to approach his throne. Yet he couldn't leave Periphas alone in this state; and so Zeus also transformed Periphas's wife - into a vulture. The only privilege possessed by this feminine bird (aside from that of serving as a companion for the "king") was that of being a good omen in the affairs of humanity.<sup>[49]</sup>

Much the same situation prevailed with Zeus's Roman counterpart, Jupiter, whose favored bird was not the vulture, which may well have been tainted in the Roman mind by its perceived feminine qualities, but the eagle. The Romans' Old European-influenced contemporaries didn't necessarily have any problems with thinking of vultures as masculine, as a painting in one Italian Etruscan tomb, dating to the 4th century BCE, depicts what is believed to be a male vulture deity.<sup>[50]</sup> Nevertheless, the Romans did have trouble with that line of thinking. The aerial and "masculine" eagle thus became a favored symbol of Roman power; but in the early centuries of the Republic, it was not the ubiquitous and unrivaled icon that it would later become. It attained that status thanks largely to Gaius Marius, a consul of Rome during the late 2nd century BCE. Prior to Marius's rule, each of the legions that made up Rome's army could choose their own totemic symbol to rally behind and carry into battle. But Marius, who was highly militaristic and who had a vested interest in keeping Rome united, decreed during his rule that thenceforth each legion would carry only one battle standard: the eagle of Jupiter. And so, the eagle became the default symbol of Roman military power; and, by extension, of Rome itself.

It's easy to think of this outcome as a foregone conclusion today, when it seems as though half the nations on earth rally behind symbolic eagles; but at the time, it set an unusual precedent. As we learned in Chapters 3 and 4, prior Eurasian empires in need of visual symbols of their military might were more likely to choose vultures over eagles – not just because the vultures were larger, more numerous, and (to them) more impressive, but also because of the powerful influence of the ancient Vulture Cult, which in Europe was part and parcel of the Old European beliefs that the Romans sought to divest themselves from. Although the Old European god Mars continued to be venerated late into the Empire, it seems that his vultures were largely forgotten by the people of Rome. The fourth century CE writer Aelian claimed that an official Roman custom, dictating that at official occasions a consul or emperor should be preceded by a dozen ceremonial bodyguards, was created in recognition of the 12 vultures that Romulus had seen on the Palatine;<sup>[51]</sup> but this was probably just a facetious explanation for the tradition that was tacked on after the fact.<sup>[52]</sup> Even the vultures' role in

augury faded away with time, as the *augures* came to favor extispicy (divination by examination of animal entrails) over examination of bird flight as a method of foretelling events.<sup>[53]</sup>

Although Marius could hardly have foreseen it, his decree that the soldiers of Rome would march only under eagles would have a profound and long-lasting impact upon the symbolism and imagery of the political worlds that would follow. Rome became the preeminent power in the Mediterranean region for centuries; as a result, when looking for symbols, every successive state, kingdom, and empire that claimed allegiance to the Western tradition would look first to eagles, for all wished to imbue themselves with the power and glory that the Roman eagle was thought to symbolize. No nation in the Western line of descent would again choose vultures as heraldic symbols until the early 19th century, when several newly independent nations in South America elected to use images of the largest vulture of all, the Andean Condor, to represent themselves; and even that choice was met with ignorant derision in some circles.<sup>[54]</sup> The first Romans who hoisted silver eagles over their heads and carried them into battle couldn't have known that their actions would, more than twenty centuries later, lead to a world in which the eagle was the default choice of anyone looking for a symbol of power. Not just in Europe, either; but, as a result of Europe's five-century period of global imperialism, almost everywhere in the world.

The choice of the eagle as the symbol of Rome, and therefore as the "king of birds," would have perennial consequences for both it and the vulture. Certainly, it ensured that later generations would interpret ambiguous (or even not-so-ambiguous) references to large raptors that might have referred to either vultures or eagles as *always* referring to eagles, particularly if the birds were referred to in a positive light. Such misinterpretations ensured that as time went by, fewer and fewer people would be aware that eagles hadn't always possessed a monopoly upon the enthrallment of human imagination and that vultures, too, had once been widely admired and idealized. The full effects of this intentional stalinization and accidental ignorance wouldn't be discernible for centuries; but as we saw [in Chapter 3](#), as early as the penning of the New Testament in the first century CE there were signs that the once-powerful manifestations of vultures were gradually being suborned into the all-consuming "eagle" espoused by Rome.

Of more immediate importance in the Roman era was the pervasive European practice of placing creatures in artificial hierarchies. This dubious tradition reached its full flower in the Roman Empire, and the fateful symbolic competition with the eagle ensured that vultures seldom ranked highly in any bird hierarchy. The great Roman satirist Lucian certainly subscribed to the vulture-as-lower-class-creature idea, and even lyrically painted its influence as reaching all the way to the moon. In his work *Icaromenippus*, the character Menippus chooses to imitate Icarus, that ill-fated idol of early aeronauts, by flying like a bird. Menippus, however, isn't content with a mere aerial sojourn; he chooses to fly to the moon, in order to settle an argument about the shape of the earth. He does so by catching a vulture and an eagle ("for no others would be large enough to uphold the weight of a man's body"), cutting off the vulture's left wing and the eagle's right, and strapping them to his respective arms. A right-handed man like Menippus of course favors the right arm, which is why the eagle's right wing was taken; the vulture's wing is worn on the left because the vulture is lower in the avian hierarchy than the eagle. Our adventurer's left arm tires first as he reaches the moon, thus forcing him to favor it as he lands on Luna. He then meets a Lunarian philosopher with the unlikely name of Empedocles, who points out that "the eagle so far surpasses all the other creatures in strength of sight that he alone can look square at the sun," and tells Menippus

it is in your power this minute to have one eye royal, for if you chose to stand up for a moment, hold the vulture's wing still, and flap only the other one, you will become sharp-sighted in the right eye to match the wing; the other eye cannot help possibly being duller, as it is on the *inferior* side.<sup>[55]</sup> [My italics, translated by A. M. Harmon]

The Romans also seem to have regarded acts of aggression against eagles by the "inferior" vultures as very bad omens. In the oft-told tale of King Tarquinius Superbus, the last ruler of the Etruscan dynasty that had preceded the Roman Republic, it was said that he was ultimately overthrown by the Roman patricians because his eldest son raped one of their noblewomen. The gods had preordained this event, and as Dionysius of Halicarnassus wrote in his *Roman Antiquities*:

Heaven had forewarned him by numerous omens, and particularly by this final one: Two eagles, coming in the spring to the garden near the palace [of Tarquinius], made their aerie upon the top of a tall palm tree. While these eagles had their young as yet unfledged, a flock of vultures, flying to the aerie, destroyed it and killed the young birds; and when the eagles returned from their feeding, the vultures, tearing them and striking them with the flat of their wings, drove them from the palm tree. Tarquinius, seeing these omens, took all possible precautions to avert his destiny, but proved unable to conquer fate . . .<sup>[56]</sup>  
[Translated by Ernest Gray and Edward Spelman]

Perhaps the Romans felt that there simply wasn't room for both eagle and vulture in their admiration. They didn't unanimously regard vultures as evil, by any means; officially or unofficially, the birds could still be interpreted as good omens in some situations, and many Roman households kept small statues of vultures or chimerical animals with vulturine characteristics for good luck charms, perhaps in recognition of the role they played in the legend of Rome's founding. But it can fairly be said that in ancient Rome the cavalier, arrogant dismissal of vultures as evil and inferior birds that would come to characterize Europe as a whole first took shape – and that attitude was likely due in large part to the actions of the Romans themselves. In early Rome, there was a special hill, Campus Esquilinus, where misbehaving slaves and criminals were tortured and executed, sometimes by crucifixion. It seems that vultures were frequently seen there, as some contemporary poets took to calling them “Esquiline birds.” In his *Satires*, the Roman poet Juvenal wrote of the hill, “The vulture hurries from dead cattle and dogs and crosses / to bring some of the carrion to her offspring.” (14:77) There were probably similar sites in most Roman cities, which provided the vultures with a fairly steady source of food,<sup>[57]</sup> and the Roman people were likely desensitized to such sights – due in no small part to the cruelties of the arena.

One might think that the Roman Empire's gladiatorial games and bloodsports were even more of a godsend to vultures, and to scavengers in general. A gladiatorial arena surely could be depended to supply a steady stream of fresh corpses; and some arenas, particularly those in the far-flung, less-civilized provinces of the Empire, are popularly believed to have had resident vultures. Although there is little hard evidence for this, vultures certainly do profit from the detritus of the nearest modern equivalents of the Roman games, the bullfights of Spain.<sup>[58]</sup> But the price paid for this local abundance of carrion was a vast, centuries-long depletion of large animals all across the Empire. Animals - mostly large mammals, plus some birds and reptiles - were captured in huge numbers wherever they could be found and brought to the arenas to die, in combat against each other and against animal-fighting gladiators known as *bestiarii*.<sup>[59]</sup> In his book *Ecocide*, Franz J. Broschimmer claimed that the Roman games were “probably responsible for the greatest annihilation of large animals since the Pleistocene megafauna mass extinction” at the end of the ice ages; considering the numbers involved, it's difficult to disagree. Special but routine events like the conquest of a new



province, the inauguration of a new emperor, or the dedication of a new arena were celebrated with games, sometimes lasting for months, in which thousands of animals were killed. The famed Colosseum of Rome was consecrated with the blood of an estimated 9,000 large animals, dispatched in a solid three months of slaughter. And with methods of capture and transport that were absolutely pitiless, the number of animals killed in the games pales in comparison to the number killed before they even *reached* the arenas.<sup>[60]</sup> In short, before 400 CE the lands surrounding the Mediterranean, as well as parts of the Near East and northern Europe, were denuded of large animals, the primary source of food for vultures. If these animals were replaced at all, it was by livestock. Thus the vultures which would come to be the most hated in the world also came to be more dependent for food upon human activities, in the form of pastoral stock-raising, than the vultures of any other part of the world. This wasn't an enviable situation for the birds, and they would pay dearly for being forced into it.

Roman views of vultures undoubtedly were dimmer than those of the ancient Greeks, which in turn were less favorable than those of the Old Europeans. Writing in the second or third century CE, the Hellenistic Greek Antoninus Liberalis described the vulture as "the bird most detested by gods and men,"<sup>[61]</sup> and there's no reason to think that this wasn't an accurate characterization of prevailing attitudes at the time. I therefore cannot agree with Angelo de Gubernatis's statement in *Zoological Mythology* that, "The vulture . . . generally preserves in Graeco-Latin tradition the heroic and divine character which it has in Indian tradition."<sup>[62]</sup> In ancient Greece, and especially in ancient Rome, the vulture was far less of a hero (let alone a god) than an unappreciated and undervalued sidekick to the new default hero, the eagle; and it served primarily as an unfavorable comparison and a butt of jokes. That was still a far more charitable characterization than the perception of the vulture that would prevail in medieval Europe, where it soon became the most villainous bird that the world had ever known. Certainly, the pattern of change in European religious beliefs played a part in this shift, with patriarchal Christianity condemning most of the remaining matriarchal Old European beliefs into the realm of satanism and witchcraft. This shift in outlook ensured less favorable views of creatures that were linked with the "feminine" aspects of existence, such as the vulture. But the most marked change in views of the carrion birds seems to have happened from the fifth to ninth centuries CE; during the shift from the rule of the Roman Empire to the feudal system of medieval Europe, but *after* Christianity had already prevailed over pagan beliefs in southern Europe. Clearly, there must have been something else at work - and there was.

Sometime in the waning decades of the Roman Empire (no later than the fourth century), a previously unknown method of hunting arrived in southern Europe. It had been popular in the Near East for hundreds of years, especially among rulers and the aristocracy, and it would soon attain the same status in Europe, quickly spreading all over the region. By the time of the Crusades, it had become the single most favored pastime of the landed and wealthy. In feudal Europe, horseracing wasn't the sport of kings (and princes, dukes, earls, and barons); falconry was. One of the most highly-placed and vocal adherents of the sport, the Holy Roman Emperor Frederick II, was so devoted to falconry that in the mid-13th century he and his scribes penned an enormous volume entitled *De Arte Venandi cum Avibus* ("The Art of Hunting with Birds"), a book that was intended to serve as a tell-all guide to falconry as practiced in medieval Europe. In his book, Frederick (who clearly was no humble man) wrote that "since many nobles and but few of the lower rank learn and carefully pursue this art, one may properly conclude that it is intrinsically an aristocratic sport; and one may once more add that it is nobler, more worthy than, and superior to other kinds of [hunting]."<sup>[63]</sup> While the jury is still out on those latter statements, the great expenditures of time and money involved in capturing, training, and maintaining birds of prey ensured that falconry would largely remain restricted to the

nobility of Europe; and the characteristic solipsism with which these nobles imposed concepts born of falconry upon all other aspects of life ensured that their “intrinsically aristocratic sport” would be a defining force in European society for more than a millennium.

Over the centuries that it was widely practiced, falconry exerted a considerable influence upon European thought. One medieval bestiary, Hugh of Fouilloys's *Aviarius*, was written by a 12<sup>th</sup>-century monk who devoted no fewer than six chapters of his book to the discovery of allegorical examples of Christian dogma, as embodied in falconers' tame hawks and their various paraphernalia.<sup>[64]</sup> Furthermore, a surprising number of words in current or former use in European languages were originally derived from falconers' slang. *Haggard*, for example, was first used to describe a wild-caught hawk or falcon before it was tamed, and only later came to be applied to any disheveled-looking person or animal. *Poltroon*, a once-common insult meaning "wretched and cowardly," originally referred to a trained raptor that had the sharp tips of its hind talons clipped off, ensuring that it would catch its prey without inflicting the usual severe lacerations upon it.<sup>[65]</sup> And, although the roots of the word *coward* predated falconry's arrival in Europe, it's worth pointing out that falconers used it specifically to disparage raptors that were unable or unwilling to kill prey; that were thought to have lost their courage. The implications for scavengers that had an innate aversion to killing prey are obvious; indeed, they would effectively become institutionalized.

Early European naturalists such as Aristotle had categorized birds by their physical structure; for example, all of the vultures, hawks, falcons, and eagles as well as various crows, shrikes, and swallows could be placed in a single category because all of these birds possessed hooked claws. Falconers conspicuously broke with this tradition; they cared little about either anatomy *or* the habits of birds, beyond any potentially useful predatory behavior. Frederick II felt that the carnivorous birds should be divided into three classes, to wit:

Vultures and lammergeiers never kill any animal for food, but live on carrion. Others prefer dead animals but sometimes kill for food, as do kites and the common eagle. Others, like the true falcons and hawks, devour only what they themselves kill; they never eat a dead body.<sup>[66]</sup> [Translated by Casey A. Wood and F. Marjorie Fyfe]

Like much else in Frederick's “authoritative” book, this statement is completely false, though it does accurately reflect the values of the falconers who deceived themselves into believing it. To falconers, and thus to the higher society of medieval Europe, the only traits of a bird worth noting were its potential usefulness to a falconer; that is, whether it hunted live prey or not - if it did, it could at least theoretically be used in the sport - and whether it could serve *as* prey or not. Thus Frederick maintained that birds of prey were defined “by the capture of live animals, so that birds with curved claws, such as vultures and others . . . that live upon carrion, cannot be called birds of prey.”<sup>[67]</sup>

This faulty but fundamental division between vultures and the other raptors proved very durable, far outlasting the heyday of falconry, and its influence upon views of vultures is still all-too-evident today. From the beginnings of formal biological science in the 17th century until the late 19th century, it was traditional to group all of the diurnal birds of prey into just two families: the “noble” raptors, the *Falconidae*, which included all eagles, hawks, falcons, buzzards, harriers, etc.; and the “ignoble” raptors, the benighted *Vulturidae*, which were characterized by (as one pundit put it) “their naked heads, sluggish habits, and filthy food.”<sup>[68]</sup> It was no less obvious then than it is now that, like the vultures, many birds of the *Falconidae* had also lost some of their facial feathering, were frequently inactive, and/or commonly scavenged their food; but in this “scientific” classification, these demonstrable facts simply weren't important. No part of science was, as even some ornithologists were

willing to admit that the "noble/ignoble" division was based only upon the precepts of falconry, rather than upon any serious examination of anatomy or behavior.<sup>[69]</sup>

There was nothing new in the realization by medieval Europeans that vultures were unique among raptors in the sense that they seldom or never killed prey. The Romans recognized the great size and strength of vultures, and may have also known that they were able to dominate eagles and other predatory raptors at food sources; but vultures didn't use this power to unjustly attack living things, and so those rare souls who valued peaceable restraint held the birds in high esteem. Thus, according to Plutarch, the legendary hero Heracles always greeted the appearance of a vulture with joy, not only because of its rarity and mystery, but also because the great bird was the least harmful creature imaginable. It neither ate crops nor harmed livestock, and never killed or hurt any of its fellow creatures (or so he thought). It specifically abstained from harming its fellow birds, unlike eagles, owls, and hawks; and as the playwright Aeschylus put it, "What bird is clean that preys on fellow bird?"<sup>[70]</sup> Pre-medieval Europeans were also very much aware that there was no gulf separating the diets of vultures from those of other raptors, as almost all other raptors would also scavenge carrion if given the opportunity. But this knowledge was a result of looking at the birds from an observational standpoint; literate Europeans of the Christian age tended to look at them, and at all wild animals, from a utilitarian standpoint; were they of any use to mankind? If not, they were worthless - except as living allegories which, as Hugh of Fouillooy put it in Chapter 45 of his *Aviarium*, "by examples of perverse action teach educated men possessing the power of reason."

Much has been written about the importance of falconry in the cause of preserving the birds of prey of Europe (and, by implication, of the rest of the world);<sup>[71]</sup> so much that I wonder if the case has been overstated. It's true that the value attached to favored hunting raptors encouraged the development of techniques to keep them alive and well in captivity, some of which are still used in raptor husbandry today, and sometimes also helped to preserve their nesting areas in the wild. But this benevolence was extended only to the small variety of birds favored for use in the sport: primarily the larger falcons, certain short-winged hawks, and a few eagles. The great mass of less favored raptors, from ospreys to kites to buzzards, was left out in the cold.<sup>[72]</sup> Although they're thought of as the archetypical birds of prey today, buzzards were considered to be all but useless for falconry training, to the extent that a similarly unteachable person was often called a *buzzard*.<sup>[73]</sup> Hence the emergence of expressions like *between hawk and buzzard*, meaning between a good thing and a bad thing, and the colloquial use of *buzzard* as a derogatory word, long before it was applied to vultures.

Among the small number of raptors that were considered useful for falconry, not all were equally favored. With dreary predictability, the status-obsessed nobles preferred to place them in a hierarchy. The most formal extrapolation of this hierarchy is the infamous "Names of all manner of hawks" list found in the English *Boke of St. Albans*, a falconry manual first published in 1486 (though the list likely had existed in some form long before then). As might be expected, the list held that smaller raptors were less important, and so were relegated to persons low in the social scale. For example, a servant or knave was assigned the Kestrel, a tiny falcon incapable of killing anything larger than a mouse. Progressively larger and more powerful birds were restricted to higher and higher levels of nobility. Eagles, according to the list, were to be flown only by emperors. As they were the largest birds usually thought to be of any use in falconry, it was only natural that an abstraction of these birds, the "eagle," was dubbed the "king of birds." However, it seems that eagles were only rarely trained by falconers in medieval Europe;<sup>[74]</sup> in practice, the most desired birds for falconers were the largest falcons, Peregrines and Gyrfalcons (which were assigned to kings by the *Boke of St. Albans*). Artificial and unrealistic though it was, this hierarchy of birds was a part of



common knowledge in medieval Europe, and no more to be questioned than man's god-granted dominion over the natural world.

Any lack of appreciation for this avian hierarchy could have serious consequences for both man and bird. Just as there are stories of medieval kings personally ordering a halt to the popular amusement of Lion-baiting in their realms - not because of any humane concerns, but because they felt that status of the "king of beasts" shouldn't be degraded by pitting it against such lowly opponents as starving Dogs - there are also tales of European rulers angered by incidents demonstrating that the eagle wasn't quite the all-powerful ruler over other birds that it was cracked up to be. In an anecdote related by the 12th-century writer Alexander Neckam, a hawk "by craft and accident" killed an eagle in self-defense, as the King of England and his entourage looked on. The King's courtiers applauded the courage and audacity of the hawk, much smaller and lower in the hierarchy than its defeated foe; but the King reproved them, and decried the hawk's behavior as a clear case of "the employ of force by vassals against their sovereigns." He then ordered that the hawk be hanged for treason (!), an act that was presumably intended to serve as a warning to the courtiers, as well as punishment for avian regicide.<sup>[75]</sup> A nearly identical story is told about Emperor Frederick II, who once witnessed the killing of a young eagle by a trained falcon and similarly demanded the execution of the smaller bird for its "crime."<sup>[76]</sup> We can only wonder how such rulers would have reacted to news that their royal counterparts in Persia and India, who were no less obsessed with falconry, frequently hunted down wild eagles with specially trained Saker Falcons.

To say that the people of medieval Europe - particularly the nobility - were obsessed with status and hierarchy is wholly accurate, yet still a colossal understatement. Relationships between different animals were almost inevitably interpreted by Europeans as metaphors for the trials and tribulations of human society, especially if they involved conflict. In his book *Courtiers' Trifles*, Walter Map, a 12<sup>th</sup>-century clerk and scribe, recorded how the King and Queen of the Breton kingdom of France conspired to murder a count named Remelin and his sons in order to take over their lands. The royal pair invited Remelin to their castle, and the Queen attempted to gain his trust, the better to carry out her treachery later. As the Queen and Remelin sat on the castle's ramparts, wrote May, "there chanced to come in sight two white vultures perched on a carcass; they were large and as comely as their well-known ugliness allows - for the bird is an uncouth creature. And lo! a third vulture, a small black one, dislodged the white ones with a sudden dash and secured the carcass." Remelin laughed uproariously at this sight. When the Queen asked him why, he responded:

There is a great hill in my land which breeds black [Monk] vultures; another over against it has many more which are white; but whenever they meet in fight, one black one can overmaster two white ones [Eurasian Griffons], as you have just seen. And I laughed, because in any engagement one of my soldiers can likewise beat two of yours. [Translated by M. R. James]

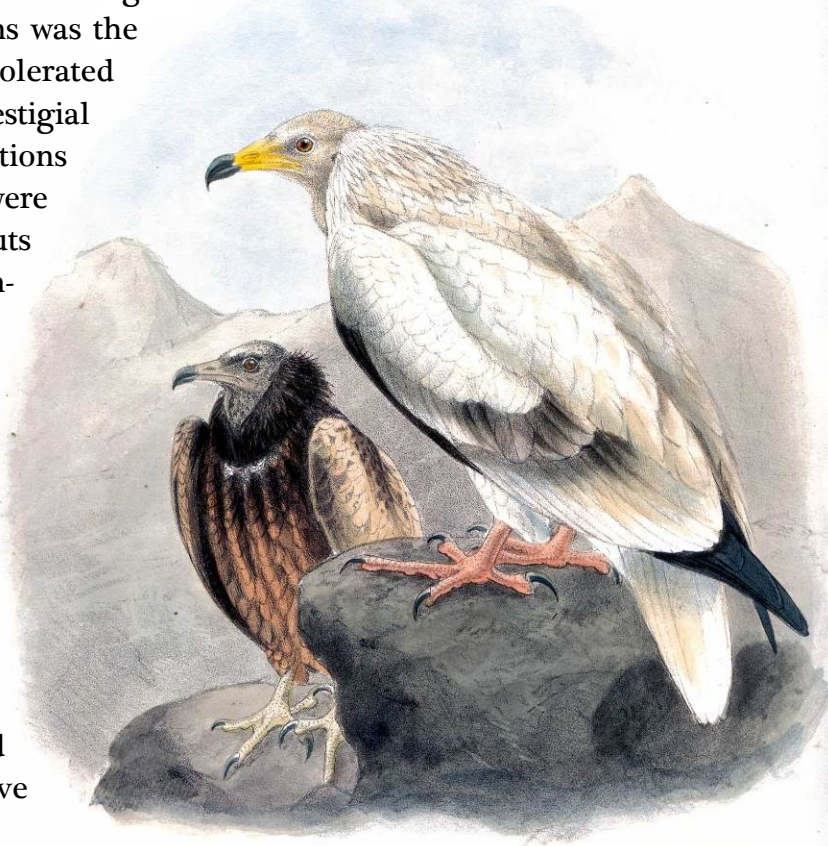
The Queen was inclined to agree that, "If that is true, it is a matter that deserves your laughter and our tears" - though she later carried out her treachery against Remelin anyway.<sup>[77]</sup> Similarly, in a medieval folktale from Eastern Europe, it's said that long ago, all of the birds attended a conference in order to work out an order of authority determining who would rule over whom. The hierarchy agreed upon follows first a pattern of increasing size: a small sparrowhawk lay at the very bottom, above it a heron, above it a harrier, and above it a kite. Above these birds were the vultures, among whom the hierarchy seems to switch to a perceived rank of the birds when feeding at carcasses: at the bottom, the Lammergeier (which usually doesn't compete with other scavengers, and so is often

thought to be subordinate to them), then the "vulture with the striped tail" (possibly a subadult Egyptian Vulture, which may have a part-brown, part-white tail), then the "white vulture," a Eurasian Griffon or adult Egyptian Vulture, and at the top the Monk Vulture. But the described hierarchy inexplicably departs from these recognizable patterns with the top two birds: the falcon, far smaller than any vulture, and the eagle, certainly subordinate to large vultures at carcasses.<sup>[78]</sup> This departure becomes much less inexplicable when considering that these "rulers" were also the two birds most greatly valued and desired by falconers for use in their sport.

For the sake of clarity, it should be explained just what medieval Europeans intended their concepts of "vulture" and "eagle" to signify. In present-day English, the word *eagle* is used with an almost ridiculous lack of discrimination, with even professional ornithologists applying it to about sixty different raptor species of wildly varying size, form, and behavior that belong to at least four, and more likely five or six, distantly related lineages. Medieval Europeans weren't quite so indiscriminate; although they also applied the term to several different birds, the stereotypical "eagle" that they conceived of was based primarily on just two species. As the inspiration for the "noble" behavior ascribed to this fabricated bird, the more important of the two was the Golden Eagle, the largest and most widespread of Eurasia's so-called "true" or "booted" eagles. Readily tamed for use in falconry, Golden Eagles are active and powerful predators capable of killing prey considerably larger than themselves, although most of their natural prey is less than half of their own weight. They also scavenge carrion quite often, especially during the winter, a fact that was frequently either ignored or denied outright by Europeans who thought of such behavior as a detriment to the eagle's nobility. The second model for the European "eagle," the slightly larger White-tailed Sea-eagle, was at a disadvantage compared to the Golden (to which it is not closely related) in that it couldn't be trained for falconry, preyed primarily on fish and birds rather than mammals, and was much more obvious in its scavenging habits. Yet it was also much less shy and more easily observed, especially along rivers and seacoasts, and so it contributed more to the visualization of the "eagle" than did the Golden; with their long necks, bare lower legs, and scraggly plumage, the heraldic eagles that appear on so many European flags and coats of arms look much more like Sea-eagles than Golden Eagles.

The European conceptualization of "vulture" similarly combined the traits of several birds. The look and habit of feeding on large carcasses stemmed from the Eurasian Griffon, and to a lesser extent from the larger and shyer Monk Vulture. On the other hand, the vulturine habits of eating garbage and other human detritus, and of attraction to human settlements, were based on the behavior of the much smaller Egyptian Vulture. As we've seen in the preceding chapters, cultures that were familiar with both large and small vultures almost always made some effort to differentiate between them. Post-Roman Europe was the most conspicuous exception to this rule; the vulturine literature compiled in Europe over the centuries makes it abundantly clear that there was a fundamental unwillingness to distinguish between the primal scavenging practiced by the large vultures and the more civil scavenging practiced by the Egyptian Vulture, or by smaller birds like kites and crows. In falconry-crazed Europe, any kind of carrion was just "garbage," be it the carcass of a wild forest's most noble stag or the rancid leftovers of a peasant's dinner; and so the vultures could confidently be dismissed with sweeping statements that all of them were "essentially carrion-eaters, devouring garbage of all sorts,"<sup>[79]</sup> despite millennia of worldwide opinion that had consistently maintained otherwise.

For all that Europeans seized on civil, commensal behavior as a valid reason to despise vultures, the truth is that European vultures exhibited far less development of the civil habit than those of any other part of the world. For a typical town-dweller of medieval Europe, *any* encroachment by a wild animal into a human settlement was an alarming development, which could be and often was interpreted as the work of the devil;<sup>[80]</sup> and during the Renaissance, treatises like John Worlidge's *Systema Agriculturae* of the 1660s, which encouraged farmers to "... destroy frogs and their spawn ... gather up worms ... destroy ants ... kill wasps and flies. ..." were all too common.<sup>[81]</sup> A society in which farmers were urged to massacre the very creatures which could keep their crops healthy and free of parasites would be unlikely to foster mutually beneficial relationships between humans and vultures. The only one of Europe's vultures that managed to develop much of a civil relationship with humans was the Egyptian Vulture (right), and even it was only tolerated in certain areas, especially those regions where vestigial Old European beliefs led to more equable perceptions of vultures. In Greece, for example, the birds were common sights around village dumps and the huts of shepherds, scrounging for food.<sup>[82]</sup> In 19th-century Spain, the Egyptian was "often to be seen following the plough," haunting the outskirts of settlements, where "besides feeding on carrion and garbage of all sorts, [it] devours snakes and other small reptiles," and overall was found to be "very tame and fearless."<sup>[83]</sup> Observers hailing from elsewhere in Europe seem to have thought such behavior (or maybe just human toleration of such behavior) to be very strange, though it was the norm for small vultures elsewhere in the world. In most of Europe, and especially in Central Europe, even this tentative contact was largely absent.



Vultures, in short, were written off as poor relations of the eagles; indeed, many thought of these huge, impressive birds of prey that failed to act the part as fallen nobles, former monarchs that squabbled with Dogs and crows for offal and garbage while the still-lordly eagles proudly chased down and killed their quarry. Even the much-maligned kites and buzzards hunted live prey; vultures, with rare exceptions, did not. For all their size and strength, they weren't killers, certainly not of the birds and small mammals that falconers liked to hunt with their charges. The duality of vulture and eagle is now so ingrained in modern thought that it's important to point out that it scarcely existed before Roman-era and medieval Europe, and that it would remain nonexistent elsewhere until Europe's imperial powers began spreading their cultural influence around the world. In other cultures that shared space with both vultures and eagles, the two were often thought of as complementary, or not even recognized as being substantially different; a stark contrast to the European view of vulture and eagle as eternal enemies, diametrically and irrevocably opposed in the eternal division between right and wrong. This viewpoint wasn't universally held even in Europe; it had the most strength among educated noblemen, but among peasants in remote areas it was either vague or entirely meaningless. This could give fierce proponents reason to lament, as when the English hunter R. B.



Lodge bemoaned that, "Neither the Spanish herdsmen nor the Albanian peasants, who see Eagles and Vultures every day of their lives, can tell the difference between them; they don't, in fact, know there is any difference."<sup>[84]</sup>

Mistaking their perceptions for fact, many Europeans jumped to the conclusion that besides the discrepancies in appearance and behavior there was some kind of subtle, but fundamental and easily recognized, difference between vultures and eagles; that eagles were of a higher plane of existence than the carrion-eaters, and that anyone with a brain in their head could see it. The medieval German monk Albert the Great was a firm believer in this strict demarcation, and he sounded decidedly irritated when confronting dissenting opinions:

You should know that Aristotle and some other philosophers categorize the eagle and the vulture in the same genus. Basing their conclusion on etymology . . . that aquila is derived from "acumine" (sharpness) and vulture stems from "volondo" (flying) and "capiendo" (seizing), they claim the vulture is the noblest of birds. But our own connotation of the term vulture is markedly different, since among us the vulture is a large sluggish bird of ignoble character . . .<sup>[85]</sup> [Translated by James J. Scanlan]

This claim is a bit overblown; in his *History of Animals*, Aristotle merely placed a bird he called "percnopterus" with the eagles. This probably wasn't the Egyptian Vulture, since it's described as "very large, with . . . very short wings," and is said to live in groves (Book IX, Chapter 32); the Egyptian is only a little larger than a Raven, with long wings, and lives in open habitats. But in medieval Europe, even such a minor infraction on the eagle's nobility as a potential association with the despised little Egyptian Vulture could not be ignored - though the confusion over the Egyptian's status paled in comparison to the confusion over the uncategorizable Lammergeier.

Elsewhere in the Lammergeier's vast range, the seeming contradictions in the bird's appearance and behavior usually led to the conclusion that it was distinct from other large birds of prey, neither vulture nor eagle; but in hierarchal, classification-obsessed Europe such a conclusion was unacceptable. As the Lammergeier primarily fed on carrion and was considered to be useless for falconry (with occasional exception, as we'll see shortly), it was shoehorned into the "vulture" category. Even there, the Lammergeier presented a troublesome triple threat to the idea that eagles were inherently superior to vultures, for it had a fully feathered head, like an eagle, it was larger than an eagle; and, to most eyes, it was more visually impressive than an eagle. As Richard Meinertzhagen, no great fan of vultures, would later put it, "His poise, his long pointed wings, his torpedo body and his long wedge-shaped tail contribute to give him a greater majesty than any of the true eagles."<sup>[86]</sup> The English hunter Willoughby Verner further noted that a Lammergeier's prowess in flight exhibited "marvelous ease and . . . apparent absence of all effort . . . which makes it in my opinion even more graceful than the Golden Eagle's. . . . it is unusual to see a Bearded Vulture indulge in the heavy flapping flight which both Eagles and Vultures at time resort to." This was not a lone opinion, for other ornithologists familiar with the species were "equally struck with its grace and seemingly effortless power."<sup>[87]</sup>

Persons interested in maintaining the concrete distinction between vultures and eagles thus had to take great pains in scraping together *anything* that would prevent the Lammergeier from occupying the same (or a higher) exalted perch as their beloved eagles. Among the more desperate of these attempts was made by the Reverend J. G. Wood, whose 1885 book *Animate Creation* is a high point of emotive zoological ignorance. He claimed that although, "The general aspect of the Lammergeyer is more like that of an eagle than a Vulture . . . its carriage and demeanor are devoid of that fearless, regal grandeur which is so characteristic of the eagles of all lands."<sup>[88]</sup> ("Fearless" probably

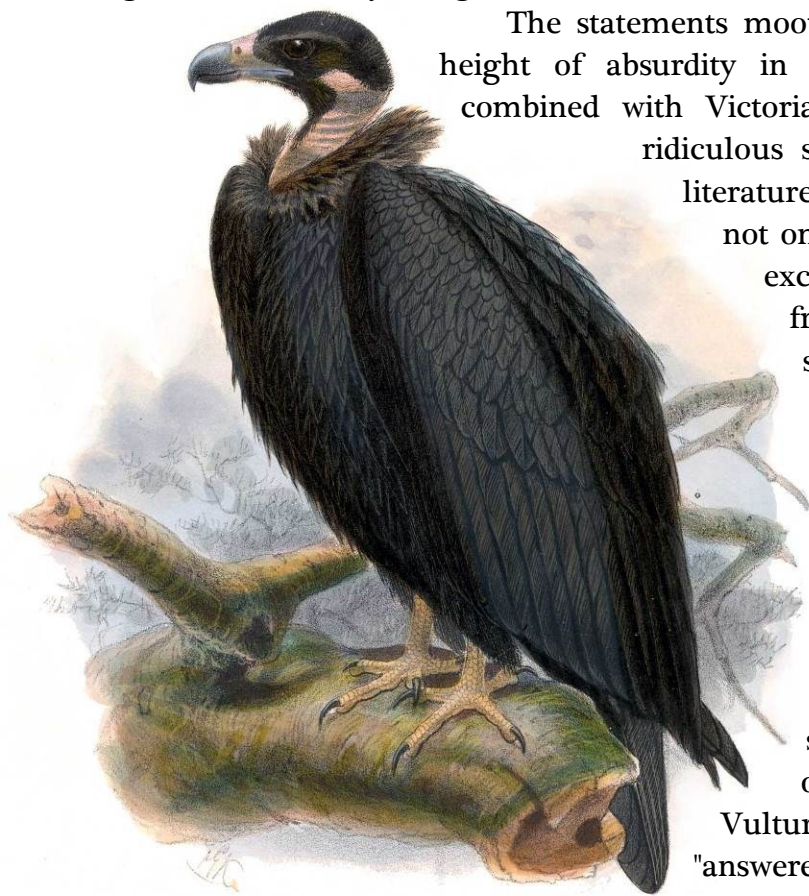
wouldn't be the first adjective that springs to mind for someone who has experienced the skittishness of wild eagles firsthand.) Similarly, in his book *Anne of Geierstein*, the Victorian-era novelist Sir Walter Scott wrote of the Lammergeier,

whose head and neck denuded of feathers, its eyes surrounded by an iris of an orange tawny colour, its position more horizontal than erect, distinguish it as much from the noble carriage and graceful proportions of the eagle, as those of the lion place him in the ranks of creation above the gaunt, ravenous, griesly, yet dastardly wolf.

It's curious that Scott felt himself qualified to make such a definitive statement, since judging from his description of a "head and neck denuded of feathers" he had never even seen a Lammergeier. One late 19th-century naturalist went so far as to claim that the Lammergeier's "manner of walking and holding its tail when feeding on the ground"<sup>[89]</sup> established it as a vulture. But why stop there; he could've made similarly persuasive arguments that the Cheetah's manner of sprinting and posture when resting on its haunches indisputably made it a dog, or that a bear's habit of standing on its hind legs and dexterously using its front paws ensured it a place in the human family tree.

The statements mooted in support of vultures' ignobility reached the height of absurdity in the 19th century, when medieval romanticism combined with Victorian exaggeration to produce some of the most ridiculous statements that were ever presented as scientific literature. One prominent French ornithologist claimed that not only did Europe's powerful Monk Vulture (left) feed exclusively on carrion, it also habitually fled in terror from even the smallest living creatures.<sup>[90]</sup> The seemingly obvious fact that such a trait would be severely maladaptive for any wild animal, scavenger or otherwise, was irrelevant because the objective of such claims was denigration, not description. Thus there was much bemusement when the British naturalist Charles Robert Bree noted in his *Birds of Europe* that, contrary to reputation, the Monk Vulture "does not appear to be either a cowardly or a stupid bird," and supported that assertion with the experiences of two other French ornithologists who had kept Monk Vultures in captivity. One mentioned that the vulture "answered to the voice of its master, and defended itself with courage against some small dogs which tried to bite it,"

and the other stated that his vulture "in confinement became so familiar as to call for its food"; while adding that the Monk "however once escaped into his establishment and seriously wounded two men."<sup>[91]</sup> (Would that the victims had been vulture-disparaging ornithologists; now *that* would have been poetic justice.)



The knife was twisted still further by the scavenging proclivities of the supposedly predatory eagles. Taken for granted elsewhere in the world, in Europe the sight of eagles eating something that they didn't kill prompted bewildered astonishment, as though the birds had betrayed their admirers by suddenly shunning the nobility of predation for the degradation of carrion-eating. Writing in the 1890s, a contributor to Richard Lydekker's *New Natural History* gaped, "That such a sporting bird can deign to feed on carrion, seems surprising; nevertheless, the golden eagle will not only eat such garbage when pressed by hunger, but actually seems to prefer it."<sup>[92]</sup> Crown Prince Rudolf of late 19<sup>th</sup>-century Austria, a man who knew full well from his experience of hunting birds of prey that there was no hard-and-fast distinction between predators and scavengers, nevertheless felt compelled to defend the Golden Eagle by claiming that although it "comes to carrion even when in quite a high condition . . . this it does very reluctantly and only if much pressed for food. . . . One may say that this eagle is, as a rule, very fastidious, for as long as hunting promises to be successful it disdains all inferior food." He apparently didn't notice that this statement was directly contradicted, on the very same page of his *Miscellaneous Notes On Ornithology*, by his reminiscences about how easy it was to bait these eagles with dead deer.<sup>[93]</sup>

Yet all was not lost for the stalwart defenders of aquiline nobility and vulturine depravity; for there still remained the fallback claim that while eagles might scavenge by choice, vultures could *never* kill their own prey. This isn't entirely true either; but it was and is widely believed, and it was regarded as proven because of the experiments of no less a falconer than Frederick II, Emperor of the Holy Roman Empire. In *The Art of Hunting with Birds*, Frederick and his assistants "made the observation that vultures, even when hungry, will not catch live birds and refuse to seize chickens when thrown to them alive and before their eyes but which they eat after they have been killed."<sup>[94]</sup> Frederick's conclusion that vultures (right) were incapable of killing even when hungry found wide acceptance, as it provided another distinction between them and the eagles. Even today, the ornithological establishment (particularly the European portion of it) displays an illogical reluctance to accept any eyewitness account of vulturine predation, no matter how reputable the eyewitness who reports it.

There are still a few hints that the possibility of vultures hunting live prey was not unknown in medieval Europe. The most notable of these is found in the "Names of all manner of hawks" list featured in the *Boke of St. Albans*. The first paragraph of the list reads as follows:

Theys hawkes belong to an Emproure

Theys be the names of all manner of hawkes . Firste an Egle . a Bawtere . a Merlowne .  
The symplest of these . Wilt slae an hynde calfe . a fawn . a Roo a kydde . an elke . a  
Crane . a Bustarde . a Storke . Swan a fox in the playn grounde . And theis be not  
enlured . ne reclaymed . by cause that thay be so ponderowse to the perch portatiff .  
And theis . by ther nature belong to an Emproure<sup>[95]</sup>

This odd passage seems to say that, as the three birds mentioned belong to an Emperor, they were the highest and largest birds in the falconry hierarchy. Even the "symplest" (i.e., most incompetent) of them could kill such large prey as "an





hynde [deer] calf," a Roo [Roe Deer]," "a kydde [probably of a feral Goat]," "a fox in the playn ground," and even an "elke," as well as various large birds. Furthermore, because the three birds mentioned were so large and "ponderowse," falconers who chose to fly them had to use different techniques than those for flying ordinary hawks or falcons; instead of being carried to hunting grounds on a falconer's fist, they were transported on portable perches (*cadges*, in falconers' lingo), to which they were trained to return when the hunt was over.

There has been much speculation upon the identities of these three birds. The "Egle" was almost certainly the Golden Eagle. The "Bawtere" was probably a vulture; different manuscripts of the *Boke of St. Albans* spell the word *vature*, *wauwour*, *vautour*, *Vowtour*, *watter*, *bawtier*, and *waweture*, all of which are plausible variants of "vulture" shortly after it entered the English language, and which seem to rule out the possibility that "Bawtere" referred to some other bird of prey. If so, this is quite possibly the only reference to typical vultures being trained for falconry in medieval Europe, though the reference may be a mistaken one. It was widely known in late medieval Europe that a real Emperor - Frederick II - kept captive vultures and conducted behavioral experiments with them. Although he seems never to have used them for hunting, the distinction between keeping raptors for experimental purposes and keeping them for falconry may have been lost (or simply irrelevant) to the compilers of the *Boke*. An alternative and less likely interpretation is that this may be a reference to actual vultures, probably Monk Vultures, being trained and used as falconry birds.

That still leaves the most mysterious of the trio, the "Merlowne." The *Boke* mentions no identifying characteristics, though it certainly was considered distinct enough from both vultures and eagles to be mentioned separately. And it must have been a very large bird, since it was not only found in the same hierarchal company as the vulture and eagle, but it was capable of killing prey as large as fawns, kids, and foxes. That latter stipulation rules out the two most frequently suggested identities for the Merlowne, the Merlin (a small falcon) and the Red Kite,<sup>[96]</sup> neither of those birds could successfully attack such prey by any stretch of the imagination. Nevertheless, the other scattered references to the Merlowne found in English literature are typically thought to refer to the Merlin. Under the heading of "merlin," the *Oxford English Dictionary* lists several English literary references to a bird that not only seems to be quite large, but whose love for the heights of the air seems to have been proverbial. In the mid-15th century, not long before the *Boke of St. Albans* was published, Richard Holland wrote in the *Buke of the Howla* of "thir merlaeonis that mountis so hie," and at the beginning of the 17th century, John Lyly used it as a comparative metaphor: "The Marlyne cannot euer sore on high."<sup>[97]</sup> These cannot plausibly be interpreted as references to the Merlin, a bird which rarely soars and is both small and very inconspicuous in flight.<sup>[98]</sup>

Still, the very name of the Merlowne may provide a few clues as to its possible identity. If we cast aside the Merlin as a possible identity, the name is suspiciously similar to the heraldic term *merlion*. This was an English heraldic bird, identical to the French *martlet*, which was conceived of as an exclusively aerial creature that never came down to earth, and so had no feet. Although the *merlion* was a heraldic device not intended to represent a real creature, it is thought to have been originally based on the swift: a small, very aerial bird with feet so tiny that they're invisible in flight. The term could also be applied to a real bird; in English, the word *Merlowne* was derived from *milan*, the German word for "kite," and was usually intended to mean "kite." *Merlowne* was also sometimes used in a general sense, to refer to any unfamiliar bird of prey.<sup>[99]</sup> If so, it seems possible that it would have been applied to a superficially swift- or kite-like bird that was not native to Britain.

It can be said with some confidence, then, that the Merlowne was a very large bird, capable of killing large animals, that soared to great heights, that was at least occasionally trained for falconry,

was placed alongside the eagle in the falconers' hierarchy, and that physically resembled either a kite or a swift (or both). There's only one bird that fits that description: the Lammergeier. This is a controversial assertion, because historians of falconry have consistently maintained that vultures, including the Lammergeier, had nothing to do with falconry.<sup>[100]</sup> But such blanket claims are founded on modern classifications stating that the Lammergeier, despite all its unvulturelike qualities, is indisputably a vulture; such reasoning was by no means universally accepted in medieval Europe. Medieval writers usually if not always distinguished between the Lammergeier and other vultures, and apparently never included the Lammergeier in the generic term *vulture*. Even to those who considered it a vulture, the Lammergeier had long been recognized as a very different bird from the other vultures; some even considered it a kind of eagle or falcon (it much resembles a gigantic variety of the latter in flight). The Lammergeier's unique combination of un-vulturelike traits just might have been compelling enough to convince a few falconers that it was worth a try to train the bird for the chase.

According to none other than the 13<sup>th</sup>-century German monk Albert the Great, this was indeed the case. In his *De Animalibus* he mentioned a bird, distinct from both vultures and eagles, which he called *Aerifylon*, "Lover of heights." It was so-called

from its propensity for seeking the very heights of the atmosphere when it flies or hunts for prey. It is said to soar higher than the clouds in its search for victims; and after finding them, it pounces on the unfortunate birds and kills them. Sometimes the targets of its attack slip from its clutches and fall to the ground. Those who later find the dead birds are unable to comprehend from whence the dead carcasses came or how they died, for the aerifylon flies at such a great height that it cannot be seen from the ground.

This description seems too vague to identify the bird; but then comes the clincher:

This bird has reddish feathers, a long tail, massive claws and legs. In size it is somewhat larger than an eagle. It captures small kid goats by first spying them on high, then attacking them by piercing their head and pecking out their brain. It builds its nest on the highest mountains, where the fledglings are occasionally captured. When tamed, it will stay on perches or in mews without leashes.

Just like the falcon this bird is accustomed to hunt its prey with a companion. After being tamed, it stays with its human master and brings all of its prey to his feet.<sup>[101]</sup> [Translated by James J. Scanlan]

Albert closed his account of the Aerifylon by mentioning that, "Indeed, it has been called the noblest of the birds of prey." A bird fit for an emperor, in other words.

Albert's description is quite unambiguous; there's only one bird of prey "larger than an eagle" with "reddish feathers, a long tail, massive claws and legs."<sup>[102]</sup> And his comment that sometimes the prey of the Aerifylon would "slip from its clutches and fall to the ground" is difficult to explain as anything other than a reference to the dropping behavior of the Lammergeier. Although bones are the usual objects involved, it's also well-known that Lammergeiers will catch, carry aloft, and drop tortoises, and there are reports of them doing the same with small mammals,<sup>[103]</sup> and of the vultures literally knocking other birds out of the sky.<sup>[104]</sup> The name of *Aerifylon* seems particularly apt for the Lammergeier, a bird that not only inhabits mountains and often soars to great heights, but is also the most markedly aerial of the large birds of prey, spending more time per day aloft than other vultures or eagles. Such reasoning could easily have been followed if the English term *Merlowne* was applied to the Lammergeier; the vulture would then have been named after the *merlion*, a bird that was so markedly aerial it never touched ground - not to mention that Lammergeiers, like the swifts after

which the *merlion* was patterned, have long, pointed wings and long tails. Whether the *milan*, the kite, figured into the identification of the Lammergeier as the Merlowne is difficult to say; though it should be mentioned that to a Briton, the flight patterns of a Lammergeier, whether witnessed or heard of second-hand, would probably resemble those of a Red Kite more than any other native British bird.

Aside from establishing that Lammergeiers were used by falconers, Albert's description of the Aerifylon squares quite well both with the information about the Merlowne in the *Boke of St. Albans*, and with much of what is known about Lammergeier behavior. Albert mentioned that the bird "will stay on perches . . . without leashes," which fits with the mention of portable perches in the *Boke*. He also said that, "like the falcon this bird is accustomed to hunt its prey with a companion" - an interesting statement because wild Lammergeiers commonly forage in pairs,<sup>[105]</sup> and this behavior could easily have been used to a falconer's advantage when hunting large or difficult prey. The *Boke* mentioned that the Merlowne would hunt "a kydde," and Albert states that the Aerifylon would kill "small kid goats." Despite the often-tremendous value attached to birds of prey in medieval Europe, the art of breeding and raising them in captivity was virtually unknown; the supply of hunting raptors could only be replenished by capturing more wild birds. This apparently held true for Lammergeiers as well; Albertus wrote that though the Aerifylon "builds its nest on the highest mountains," nevertheless "the fledglings are occasionally captured."<sup>[106]</sup> Stealing the fledglings of cliff-nesting raptors was a difficult and dangerous task, but it could be done even in medieval times; Frederick II's book contains a description of how a man would be "secured to the end of a rope and descends or is lowered from the rim of the mountain or cliff to the level of the hollow in which the eyrie is built and, entering, lifts the bird from the nest."<sup>[107]</sup>

There remains an additional question to be answered. Namely, if birds as big and spectacular as Lammergeiers really were captured, trained, and used in falconry, why do there seem to be no references to the practice beyond *De animalibus* and, perhaps, the *Boke of St. Albans*? There may yet be others; a 19th-century book entitled *The World of Falconry*, written by two Dutch enthusiasts of the sport, included a number of Lammergeier-like traits under the heading of "The Eagle," as it was used by falconers in the Near East. Drawing on unclear sources, these gentlemen wrote that the bird

has a fierce, imposing and dignified appearance and inhabits the peaks of craggy mountains. . . . [and] is found in many and varied colours. Some are brilliant black in places, some black mottled, others are black and white or *varying shades of red*. . . . The best are those of dependable character, courage and of the red variety. [My italics, translated by H. Schlegel and J. A. Verster de Wulverhorst]

They also mentioned that this "eagle" was known to the Arabs as *al-kasir*,<sup>[108]</sup> "breaker" or "shatterer," which just raises its own suspicions.

Still, there clearly are very few unequivocal references to the practice of training Lammergeiers. In his *Art of Hunting With Birds*, a book whose composition was roughly contemporaneous with that of *De animalibus*, Frederick II maintained that "lammergeiers (lamb vultures) never kill any animal for food, but live on carrion,"<sup>[109]</sup> and he certainly made no mention of trained Lammergeiers in his compendium. But Frederick's book was not all-encompassing; as with any other sport practiced over a wide area, certain falconers would have developed local idiosyncrasies from the mainstream tradition, and it's likely that many of the lesser-known local practices of European falconers never became known to him or his assistants, and so weren't mentioned in his book. This means that the tradition of capturing and training Lammergeiers - if a tradition it was, and not just the experiments of a few unusually adventurous falconers - was likely limited in both space



and time. Lammergeiers being exclusively mountain-dwelling vultures, they were less commonly seen and much more difficult to capture than more typical falconry birds. Considering the extreme difficulty of finding and capturing young Lammergeiers (to say nothing of keeping them alive in captivity, a task well beyond the means of most people who have attempted it), falconry-trained Lammergeiers must have been extremely rare; and that rarity, coupled with their great size and ability to kill large prey, would make the birds highly prized. The value bestowed by scarcity could also help explain why Albert closed out his account of the Aerifylon by mentioning that this vulture "has been called the noblest of the birds of prey," and why the *Boke of St. Albans* considered the Merlowne a bird fit only for an emperor. Besides, any Europeans who did hear second-hand reports of large birds with fully feathered heads being used by falconers to kill large prey would naturally assume that the birds in question were eagles, which would dovetail nicely with the overall trend of crowning eagles as the kings of birds and denying that the "ignoble" vultures could kill their own prey.

The revelation that vultures didn't kill was likely of no great shock to anyone who read Frederick's *The Art of Hunting With Birds*; but there was a far more contentious issue pertaining to the birds that he also addressed. It had long been a mystery whether or not vultures could actually smell the carrion that they devoured. Ancient peoples generally believed that they could, if only because the flesh that they ate was often so rank, even unbearable, to human noses that it surely must have some effect on vultures, who actively sought it out instead of avoiding it. Additionally, vultures' abodes, their nests, are often filthy to humans, covered with droppings, scraps of bone, skin, and rotting meat, and whatever else the birds have accumulated over the years. The ancient Greek writer Dionysius thought that vultures delighted in foul smells, so much that they would refuse to eat meat which had been doused with myrrh.<sup>[110]</sup> Similarly, under the heading of "Animal Antipathies," the Roman-era writer Aelian wrote that, "The fragrance of perfumes causes death to Vultures," a belief that had remarkable endurance. Apparently it would take no less a personage than an emperor to prove or disprove the theory of vulturine olfaction, and it just so happened that Frederick II took a personal interest in the problem of the vulture's nose. In his own words:

A vulture is not attracted to his carrion food by a sense of smell, although some writers maintain that he is, but relies on his eyesight. We have ourselves many times experimented and observed that an assemblage of seeled vultures, whose noses were not stopped up, did not scent the meat cast before them.<sup>[111]</sup> [Translated by Casey A. Wood and F. Marjorie Fyfe]

The "seeled" vultures had their eyes forced shut by piercing their lower eyelids, drawing thread through the holes, and then tying the thread over the top of the skull to tighten the lids closed. Frederick deduced from this experiment that the vultures he was familiar with lacked any sense of smell and found their food by sight (correct), and that birds in general were also without functional noses (incorrect, although smell seems to be of little importance for most birds). Despite this and other, similar experiments, many were far from convinced that vultures could not smell. In fact, smell was frequently thought to be the defining characteristic of the carrion birds, with writers marveling at the prowess of, "A Vulturs smelling, Apes tasting, sight of an Eagle," or asking, "Doth not the Lyon for strength . . . excel man? Doth not the Eagle see clearer, the Vultur smell better?"<sup>[112]</sup> Still, the fact that captive vultures could not find meat in their own cages if it was hidden out of sight made for a convincing case to the contrary, and enthusiasts of zoological quandaries eventually turned to other mysteries, such as whether or not toads could survive when encased inside of solid rock.<sup>[113]</sup>

By whatever means vultures found food, all could agree that they displayed little appreciation of table etiquette once they found it. Gluttony isn't far behind cowardice as the most frequent and

damaging accusation leveled against the birds by European society - as Angelo de Gubernatis wrote, "voracity [of vultures] became proverbial in ancient popular phraseology"<sup>[114]</sup> - and led to even greater disdain of vultures. This charge was based upon the vulturine habit of eating so much food that the birds sometimes had difficulty getting back into the air after a large meal; although field research indicates that a lack of wind or thermals, rather than excessive weight, is what usually keeps large vultures from taking to the air in this situation.<sup>[115]</sup> This behavior has a sound role in the birds' survival; since a scavenger cannot possibly be certain when or where its next meal will be found, it's best to eat as much as possible immediately, rather than to eat sparingly and later be stuck with an empty stomach and not a carcass in sight.

Even if medieval Europeans had known of this, the logic probably would have failed to impress them. Food shortages and periodic famines were a fact of life to the peasants of medieval (and post-medieval) Europe; it's telling that the heroes of medieval songs and folktales were often rewarded for their travails not with gold, or the hand of a lady, but with lasciviously described and longingly recorded amounts of food. The English monk Bartholomew Anglicus compiled many medieval folk beliefs in his mid-13th century *Encyclopaedia On the Properties of Things*; among them was a myth that when a vulture became ancient, the upper mandible of its bill grew so long and crooked that eventually its mouth was forced shut, and so it starved to death. This story dated back to at least the time of Aristotle, who recorded it in his *History of Animals*;<sup>[116]</sup> however, in Aristotle's version the bird involved was an eagle. Quite probably the new identification of the starved bird as a vulture was due to a strong desire for such a "greedy" creature to face poetic justice. Anglicus added that some men believed that "the vulture was sometime a man, and was cruel to some pilgrims, and therefore he hath such pain of his bill, and dieth for hunger, but that is not lawful to believe."<sup>[117]</sup>

Much the most important cause of the ill view of vultures and vulturine behavior in European society was the great leveler itself. Death was a constant companion to medieval men and women; aside from constant, low-level feudal warfare, in which the peasantry often suffered far more than the soldiers, they also had to struggle through periodic invasions of Mongols, Turks, Moors, and Magyars, Viking raids, constant threats of famine, and an exceedingly low level of hygienic and medical knowledge. (It was not uncommon for incompetent physicians to be described as *vultures*.) The average life expectancy of a medieval European hovered between 25 and 30 years, if, and only if, they survived childhood, and about half of them didn't. Because death was so pervasive and unavoidable, people chose to accept it to a degree that appears positively grotesque today. Death and all of its associated paraphernalia were as faddish and trendy in medieval Europe as sex is in modern Europe, the primary difference being that those who gabbed and joked about death could only expect to experience it once. The most catastrophic cause of mortality for these people can be summed up in one dreaded word: plague. And the worst outbreak, the one that has often been described as the worst disaster in the history of mankind, was the Black Death. It's only to be expected that the vultures of Europe, and of every other area touched by the Black Death, profited greatly from its aftereffects. But it isn't widely known that vultures may have played a substantial role in holding back the plague; and, after it overran Europe, probably helped to limit its reach.

The plague strain that caused the Black Death definitely arose somewhere in Asia, although its exact point of origin is a matter of debate. As explained by John Kelly in *The Great Mortality*, the currently prevailing theory of the Black Death's origins postulates that this particular strain arose from infected Tarabagans. The Tarabagan, also known as the Bobak Marmot, is an innocuous-looking rodent native to the steppes of Asia. Although the trappers of this region prize the Tarabagan for its fur, they also fear it because of an illness that some of its kind carry. The Tarabagan illness, highly

contagious and potentially lethal to humans, was discovered in 1905 to be none other than the plague bacillus, *Yersinia pestis*.<sup>[118]</sup> The disease is just as lethal to the Tarabagans, and since it's pneumonic and can spread by air, it often kills great numbers of them. Several species of large steppe raptors, including Steppe Eagles, Pallas's Fish-eagles, and Monk Vultures, take ready advantage of these great die-offs by gorging themselves on the dead Tarabagans. These scavenging birds are immune to the illness,<sup>[119]</sup> but that doesn't mean that they can't spread it, especially by carrying a plague-infested carcass to a new area where its fleas can find new hosts.

In this situation, the carrion-eating habits of vultures prove their true value; because, unlike the eagles or any mammalian carnivores that might eat the Tarabagans, Monk Vultures feed on the carcasses where they lay, instead of picking them up and consuming them elsewhere. This strategy minimizes the chances of the fleas finding another mammal to feed on.<sup>[120]</sup> Some fleas are capable of switching from mammalian to avian hosts, and there are records of fleas jumping from mammals to the birds of prey that ate them.<sup>[121]</sup> A Vulture feeding on a Tarabagan thus might serve as an accidental host, its blood sustaining the fleas just long enough for them to find another mammal. But even a flea that carries the plague bacillus isn't always able to spread it to the animals that it parasitizes. The plague is spread by "gut blockage," a phenomenon where the bacteria in the flea's gut multiply to the point where the blood that it ingests cannot pass through the blocking mass of germs. When blockage occurs, the flea regurgitates the bacteria-infested blood into its host, thus passing the disease along. In a study of fleas infected with plague, the parasitologist Boris Krasnov noted that "flea species exploiting closely related host species may or may not be efficient plague vectors, whereas a high blocking rate never occurs in flea species exploiting distantly related hosts."<sup>[122]</sup> In practice, this means that fleas jumping from mammals to birds, or vice versa, cannot spread the plague. The Vultures feeding on the Tarabagans thus ensure that the lethal bacteria carried by the Tarabagans' fleas are contained, effectively quarantined by the faithful scavengers. It may be a stretch to claim that the Monk Vultures of the steppes were the world's last, best hope of defense against the outbreak of a plague pandemic, but no one can say that they hadn't been doing their part to stop it.

Unfortunately, in the mid-14th century the efforts of the vultures were not enough. Europe's human population had exploded in the medieval years, tripling to 75 million people between 700 and 1250. This startling multiplication resulted in massive deforestation for the clearance of new farmland, forced farms to store huge amounts of rat-attracting food, and ensured that villages were perpetually overcrowded with unhealthy people living in filthy conditions, all of them constantly hovering on the brink of total disaster. That disaster came in 1348 in the form of Black Rats emigrating from the plague homeland of Asia. The Rats carried fleas, and the fleas carried the plague. Three years later, between a quarter and a half of Europe's population was dead, with similar casualty figures in Asia, and recurrent epidemics would lay low much of every new generation for decades to come.

Little research has been conducted regarding the effects of the Black Death on animals, wild or domestic, but it is certain that domestic mammals often died in huge numbers alongside humans. Chroniclers of these dark days described corpses of Sheep, Cattle, Dogs, and Cats that were found bearing the characteristic dark swellings that gave the plague its name. An Arab historian reporting from what is now Uzbekistan mentioned dead Lions, Camels, Wild Boar, and Hares with the swellings, so it seems that not only domestic animals were afflicted.<sup>[123]</sup> Some animals seemed to recognize and fear the potential danger, particularly the German Wolves described by one chronicler which, after descending from the mountains to attack Sheep near plague-stricken villages, "as if alarmed by some invisible warning, turned and fled back into the wilderness."<sup>[124]</sup> It remains more of an open question



how birds were affected. Some witnesses to the plague mentioned dead Chickens with swellings,<sup>[125]</sup> but that seems to be the only evidence that the disease afflicted birds. Considering that the Monk Vultures and eagles in the Asian steppes routinely feed on plague-infected marmots without any apparent problems, more likely than not, Europe's vultures were also immune; and that left them in an enviable position, inhabiting a region where humans and large mammals of all sorts were dying in the tens of millions.

In the wake of the Black Death, Europe's vultures had an overabundance of food, possibly for the first time since the end of the last ice age, and they took advantage of it. Enormous swarms of vultures roamed the skies over the dying towns and villages, descending wherever there was no one left to chase them off or to bury the dead, only staying in one place until the carrion supply began to dwindle and then moving on in search of more.<sup>[126]</sup> Although the vultures' services were hardly welcome, in truth they could have played a substantial role in holding the plague in check, especially compared to the carnivorous mammals that also feasted on plague victims. The usual disposal of plague corpses (at least when there was anyone left alive to dispose of them) involved dumping them in shallow pits, often in great numbers, and covering them with a thin layer of dirt. Bodies were often stacked in layers like this; one plague chronicler likened a multi-layer mass grave to a lasagna, with its alternating levels of noodles and cheese. These burials hindered vultures and other avian scavengers, which depend on sight to find carcasses, but did little to dissuade terrestrial scavengers like Dogs, Pigs, and Rats, all of which could contract and spread the disease from human corpses that they fed upon.

The Black Death could well be the single event that most directly contributed to Europe's fear and hatred of the carrion birds. Albert the Great wrote that vultures foretold an outbreak of plague when they were seen following groups of men, and this must have been a widespread belief in his time.<sup>[127]</sup> In Florence, Italy, the rough peasant men who lived in the hills above the city and acted as gravediggers during the Black Death, thus profiting from the pandemic, were popularly known as *beccamorti*, "vultures."<sup>[128]</sup> It certainly didn't escape the human survivors' notice that those flying reaper's revenants had thrived and prospered while all of their friends and relations were falling dead, and when it seemed that the human race itself was racing towards extinction. More than the winners, it is the survivors that write history; and many of the survivors of the Black Death had seen what was, to them, an unimaginable horror: vultures consuming the bodies of humans.

As we've observed in the previous chapters, highly religious societies have often deliberately used vultures as a winged corpse disposal service, balancing the sacred with the pragmatic by attaching supernatural significance to the birds and their acts of feeding. For the most part, medieval Europe was notably exempt from this trend; but this is no surprise in an overwhelmingly Christian society, even if we disregard the peculiarly European disdain of vultures. It was commonly believed by devout Christians that the dead would literally rise from their graves on Judgment Day, and no one wanted to "rise" from the belly of a vulture, or any other animal for that matter. The only exceptions to the total European repudiation of vulturine anthropophagy occurred when dealing with the bodies of those who were believed to deserve such a terrible fate: criminals, and people whom the church identified as congenital sinners. The bodies of the latter were often abandoned in wild areas after a ritual chant was said over them: *Sint cadavera eorum, in escam volatilibus coeli, et bestiis terrae* ("Give over this erring body for food to the fowls of the air and beasts of the field").<sup>[129]</sup> In the Balkans of southeastern Europe, executed criminals were sometimes placed on slabs of rock outside of villages, and left there for the then-numerous local vultures to devour. Oral traditions in Bulgaria identify many of these places, known as *kadi* ("judge") rocks; one near the town of Kotel was supposedly in use

until the fifteenth century.<sup>[130]</sup> It's interesting that such a tradition would occur in a portion of Europe where the ground was often too stony for digging and wood was a valuable commodity, just as it was in Tibet and certain other areas where the practice of exposure was commonplace. It is no less interesting that in Christian Europe, to have one's body eaten by vultures was considered a fate fit only for criminals, whereas in Tibet this fate was granted to almost everyone *but* criminals.

It's often said that poor views of vultures in Christian Europe were fostered by the Bible (for reasons already explained [in Chapter 3](#)). This may have been true during the last few centuries; but in medieval Europe Bibles were relatively few, and the vast majority of people were illiterate in any case, dependent on the clergy to interpret their holy book for them, and the clergy were by no means unanimous in their disdain for vultures. Persons of an ecclesiastical bent sometimes saw kin, of a sort, in the vultures, and weren't averse to pointing out the similarities between their actions and those of the vultures - or to holding up the birds as models of patient, godly restraint, especially when compared to the often-violent and unhinged feudal nobility. One such allegory was recorded for posterity by Mekhithar Gosh, a twelfth-century monk who wrote and collected many Armenian fables. This very brief story is titled simply: "Why Vultures Are Like Priests":

A family of young vultures once asked their parents why they only ever had dead things to eat, whereas the children of eagles and hawks dined on live prey. The parents replied that it had been ordained by God that they should never kill anything. Thus, they were like priests, and not like princes, who preyed on the living.<sup>[131]</sup> [Translated by Mike Dixon-Kennedy]

Inasmuch as there were any positive feelings towards vultures among medieval Europeans, they were likely to be *inspired* by biblical interpretations. We've already seen that early Christians in the Near East were willing to use old Vulture Cult beliefs to bolster their own religious convictions, and medieval Europeans continued this tradition. Medieval bestiaries (which interpreted the behavior of animals, real and mythical, as religious allegory) commonly copied St. Ambrose in likening the birth of Jesus to the belief that vultures reproduced asexually.<sup>[132]</sup> One such bestiary, Hugh of Fouilloys' *Aviarium*, attempted to find much deeper and perhaps surprising significance in the brief mention of a vulture in the biblical passage of Job 28:7 - translated here as, "The bird has not known the path, neither has it beheld the eyes of the vulture":

Whom does the bird named in this passage signify by Him who by His ascension lifted up into heaven the human body which he assumed? In fact, it is He who is appropriately referred to by the name "vulture." Indeed, if while in flight the vulture sees a corpse lying about, it sets down to eat the corpse, and thus is often killed while it descends to a dead animal. Therefore by the name "vulture" is rightly designated God's mediator and our Redeemer of men, who, abiding in the heights of His divinity, as if in a kind of exalted flight, saw the corpse of our mortality in the abyss and betook Himself from the heights into the depths. Indeed, He deigned to be made man for us; and while the dead animal perished, so He who was in essence immortal met with death among us. [Chapter 43, translated by Willene B. Clark]

On the other hand, biblical passages that mentioned vultures were often quoted in order to shame people who exhibited behavior that could be stigmatized as vulturine. The biblical injunctions that vultures were "unclean" and unfit to eat were a particular favorite for this, and were creatively interpreted in Edward Topsell's 17th-century book *Foules of Heaven*:

*You shall not eate the vultur*, because yt killeth nothinge, but liveth vpon dead carrions which yt findeth. There is nothinge worse beseeming a man then to live in idlenes vpon the labours of others, and they allso are to be abhorred which wish the deathe of their friendes, that they might possesse their goodes.<sup>[133]</sup>

What makes Topsell's lesson rather meaningless is that the Bible enjoined that birds which did killeth somethinge, like falcons and owls, were also not to be eaten. (Presumably he also thought it wrong for a man to live laboriously upon the idles of others.) Similarly, Hugh of Fouilloy wrote in the *Aviarius* that

the nature of the vulture is said to be such that any sinner can be understood through the vulture. Indeed the vulture follows the army so that it might feed upon the corpses of the dead, because the sinner follows wayward men who are in the army of the Devil, that he might imitate their perverse ways. It feeds upon the corpses of the dead, because <the sinner> delights in the carnal desires which produce death. [Chapter 43, translated by Willene B. Clark]

Albert the Great, the 13th-century German monk and naturalist who wrote of the *Aerifylon*, held a comparably dim view of the vultures of his country, and took no qualms when expressing it in his work *De animalibus*. Regarding the word *vultur*, Albert rather overimaginatively favored "a derivation from the phrase 'voluntate cupida' (greedy desire), a quality the vulture undoubtedly displays."<sup>[134]</sup> He sniffed that the "vulture is well known as a very large but heavy bird. . . . barely able to lift itself off the ground. . . . [and] often captured before it has a chance to take to the air. I myself once caught a vulture in this fashion, though I admit the bird was encumbered by a large meal of carrion."<sup>[135]</sup> Alas, Albert doesn't mention whether the vulture vomited on him as he caught it, as the birds often do when harassed by humans. Our jolly monk also took time to refute the old belief that no one had ever seen a vulture's nest:

The error of this conclusion is amply demonstrated by evidence from our own country. In the mountains that lie between the city of the Vangiones, now called Worms, and Treves, vultures build their nests every year. In fact, the entire countryside reeks from the stench of the dead bodies borne there by the vultures.<sup>[136]</sup> [Translated by James J. Scanlan]

Albert would doubtless be glad to know that the stench, along with the vultures, would be gone from western Germany in just a few centuries.

Wildlife in just about all of its forms was held in low esteem by the people of medieval (and, to an even greater extent, Renaissance) Europe, as was the wilderness that the creatures inhabited. But two specific areas of the wild were viewed with trepidation that approached sheer, bowel-evacuating terror. One was the continent's forests, immortalized in countless fairy tales as evil places, the dark bowers of man's domain where wolves, bandits, and assorted demons and monsters lurked, waiting for hapless and innocent prey. The other, which may come as a surprise, was Europe's mountains, "weird wildernesses of ice and rock"<sup>[137]</sup> that were viewed with a distaste not unlike that with which modern people view toxic waste dumps. The Alps, in particular, were shunned as abominations on the face of God's Earth, described by travelers as "strange, horrid, and fearful crags and tracts," or peaks that had "neither Form nor Beauty, nor Shape, nor Order."<sup>[138]</sup> Alpine regions have long been perceived as the wildest, most uncivilized parts of Europe, viewed askance as havens of pagans and witches; and, more recently, as the retreats of primitive, superstitious peasants, who were themselves often terrified of the great massifs that loomed over their villages. As the 19th-century hunter W. A. Baillie-Grohman put it, the mountains and their animals were believed to be watched over by "gnomes and pixies, whose mode of attack . . . was to overcome the daring hunter at the moment of greatest danger with an irresistible longing to throw himself down the giddy abyss at his side, or to loosen with invisible hand the rock on which he had gained a precarious foothold." Furthermore:



Every phenomenon of Alpine life was connected with some occult power; the avalanches were the playthings of the snow-fairies, and when the heat of the summer's sun bared the lower slopes, the fairies bombarded the intruder with showers of stones. To sleep on a mountain was, until the middle of the last century, considered a most reckless proceeding. While the enhanced violence with which thunder and lightning visit elevated mountain regions, has to this day not lost in the minds of the unsophisticated inhabitants a supernatural significance. . . . It was this fear of unknown evil consequences, which contributed so largely in delaying Alpine exploration until comparatively modern days.<sup>[139]</sup>

It hardly needs to be said that the creatures which inhabited these mountains, especially the Lammergeier, were also viewed askance. To put it mildly.

This most distinctive of vultures was the target of a centuries-long campaign of persecution more intense than that suffered by any other European bird. In southern Germany, the Swiss Alps, and Italy, it was considered enough of a threat to life and lamb that a bounty was often placed on its head;<sup>[140]</sup> elsewhere, persecution was less organized, but no less severe. The species' survival in Europe to the present is a testament to the remoteness and unapproachability of its preferred haunts; in Central Europe, at least, the most inaccessible mountains were also those most likely to harbor remnant populations of Lammergeiers.<sup>[141]</sup> Nevertheless, most of Europe's mountains were denuded of Lammergeiers long ago; the last bird in Germany was shot in 1855, the last in Austria was trapped in 1881,<sup>[142]</sup> the last in Switzerland (a female, who managed to survive her mate's shooting by 25 years) was poisoned in 1887, the last in northern France was killed in 1880,<sup>[143]</sup> in southern France, 1910,<sup>[144]</sup> in Italy, 1913,<sup>[145]</sup> in the Fagaras Mountains of Romania, 1927,<sup>[146]</sup> and the last few in the Carpathian Mountains of Eastern Europe were poisoned by wolf corpses in 1935. Even in the sanctuary regions of Spain and Greece, about the only parts of Europe where vultures could find havens from persecution, the Lammergeier wasn't safe; it was noted in the late 19th century that Spanish herders "dislike it as a neighbour and try to destroy its nest . . . by throwing stones at it,"<sup>[147]</sup> and there are all-too-many skins of Greek Lammergeiers to be found in museums.<sup>[148]</sup> That such a sustained, semi-organized program of extermination would be directed against the Lammergeier, of all birds, does seem puzzling from a modern standpoint. Present-day ornithology maintains, with a few dissenting opinions, that Lammergeiers are essentially unaggressive creatures that rarely if ever kill prey,<sup>[149]</sup> and that they couldn't rightfully be blamed even for the questionable depredations of livestock attributed to eagles or other vultures.

Earlier Europeans believed differently. With or without evidence, the Lammergeier was commonly considered to embody all the worst



traits of vultures and eagles both - and then some. A fine summary of its infamy appears in Willoughby Verner's 1909 book *My Life Among the Wild Birds in Spain*:

[I]n the regions where it originally became known to the world, Switzerland and the Tyrol, it has been since mediaeval times invested with almost supernatural powers, from killing adventurous chamois-hunters or boys who sought to rob their nests, by knocking them off cliffs, to carrying off infants, and, in its milder moments, preying upon chamois and sheep which it slew and carried off in mid-air to its eyrie in some appalling cliff, many thousands of feet high.<sup>[150]</sup>

"Almost supernatural" may indeed be an understatement. It'd be difficult to exaggerate just how outlandish a reputation this vulture once possessed; if all of the seemingly incredible and astounding anecdotes ever told about any other bird of prey anywhere else in the world were collected, distilled, and remolded into a coherent body of folklore, the result would likely only begin to approximate what was once believed about the Lammergeier in Europe. This was a bird that not only carried large animals aloft, abducted swaddling infants, and flung strong men from high cliffs, but could even devour chunks of sharpened iron without missing a wingbeat. The British naturalist Wilfred H. Hudleston wrote that the people of Greece "believe he will swallow and digest any thing. . . . One man averred that an old axe-head had been found in this bird."<sup>[151]</sup> He didn't mention whether the axe-head swallowed by the Lammergeier was being used for wood-chopping or butchery before it met its odd fate, though the latter would seem more likely. Hudleston was unwilling to accept the axe-head story (because, according to him, "The character of the Greeks for mendacity is well-known") but he himself once saw a Lammergeier near Athens "which had evidently swallowed a bone, or something uncommonly indigestible," which left the bird "in a very uncomfortable attitude, and appeared to be leaning on his long tail for support."<sup>[152]</sup>

In his book *Birds of Europe*, Charles Robert Bree mentioned that when Lammergeiers were dissected by 19th-century naturalists, the contents of their stomachs "have created no little astonishment, and surpass all that has ever been related of the voracity and digestive powers of smaller European birds of prey." One stomach was found to contain "five bullock's ribs, two inches [5 cm] thick, and from six to nine inches [15 to 23 cm] long, a lump of hair, and the leg of a young goat, from the knee to the foot," and another held "the hip bone of a cow, the skin and fore quarters of a chamois, many smaller bones, some hair, and a heathcock's claws."<sup>[153]</sup> Bree wrote that the Lammergeier's "principal articles of food are lambs, goats, the chamois, and even deer, possession of which it obtains by driving them over precipices, and then feeding upon the dead bodies where they lie. It has been said to attack man himself when asleep, which it not improbable as it is a fearless bird in its own wilds."<sup>[154]</sup> According to Bree, Lammergeiers were also seen carrying away fully grown Dogs and Goats,<sup>[155]</sup> as well as smaller creatures "such as foxes, lambs, or marmots, [which] it will pounce down upon direct and carry them off."<sup>[156]</sup>

This characterization very nearly led to the extinction of the species in Europe, since stories of Lammergeiers killing humans or livestock were considered to be sound reasons for exterminating the vultures. As Bree wrote, with the pseudo-Darwinist logic so popular in Victorian times, by the mid-19th century the "Lamb-slayer" had become "one of the rarest birds of Europe, though at one time it was found in plenty. . . . [because its] predatory habits mark it as an object of destruction, and in obedience to what appears a natural law, like the Red Indian, it disappears before the march of civilization."<sup>[157]</sup> The reports of those predatory habits can be grouped into three broad categories: tales of lamb-snatching, tales of baby- and child-snatching, and descriptions of Lammergeiers swooping at and knocking humans off of cliffs, presumably in order to partake of the resultant messy feast.





Until the 20th century, lamb-snatching seems to have been an almost-unquestioned part of the Lammergeier's European mythos, something that few persons had personally witnessed but that everyone told stories about, passing it along until it became stereotypical. It was widely believed in some parts of 19th century Greece, where shepherds maintained that Lammergeiers were "very destructive to the young lambs and kids,"<sup>[158]</sup> and in the mountains of Spain, where there was an old legend that Lammergeiers would grab lambs from the midst of their flocks, carry them high into the air, and then drop them onto the rocks below.<sup>[159]</sup> But such stories were most prevalent in Middle Europe, the mountainous regions of southern Germany, Austria, Switzerland, and northern Italy, where the literature leaves one with the impression that no excursion into a mountainous area was truly complete without the sight of a Lammergeier engaging in a little ovine airlifting.

Nevertheless, hard evidence for the Lammergeier actually acting as a "Lamb-slayer" is somewhat lacking. The most detailed anecdote of a Lammergeier preying upon a lamb that could be found for this book is a brief, vague mention in Bree's *Birds of Europe* of a Lammergeier "in the Grisons" (of eastern Switzerland) carrying off "a lamb weighing fifteen pounds [6.8 kg]."<sup>[160]</sup> Somewhat surprisingly, anecdotes of Lammergeiers preying on young Goats are much more detailed and interesting. As already mentioned, in the 13th century Albert the Great claimed that the Aerifylon would attack "small kid goats by first espying them from on high, then attacking and killing them by piercing their head and pecking out their brain."<sup>[161]</sup> More detailed records of Lammergeier kid-killing



can be found in Abel Chapman and Walter J. Buck's 1893 book *Wild Spain*. This is what they had to say about the ongoing debate about whether or not Lammergeiers ever killed prey, specifically livestock:

Some naturalists seem inclined to hold that the bird is only a *vulture*, subsisting on carrion, and fearing to attack any living prey. The goatherds of Nevada [in southern Spain], however . . . do not share this view. One kindly old hill-farmer . . . assured us that the "quebrantones," as he called them, were as destructive to his newborn kids in spring-time as the wolves themselves, and added that he laid out the *veneno* [poison] in special spots for each of his enemies. Only three days before, he asserted with vehement emphasis, he had witnessed a Lammergeyer strike down a week-old kid, its mate meanwhile driving off the dam. So intent was the bird on demolishing its victim that the farmer approached within a few yards and threw his stick at it as it rose. The kid, however, was dead. He insisted that the robber was no Golden Eagle (which he knew well), but "*de los Barbudos malditos*" - one of those accursed bearded fellows!<sup>[162]</sup>

Despite the kindly old hill-farmer's insistence, it is very likely that some, though not all, of the Lammergeier's supposed livestock depredations were due to confusion between it and the Golden Eagle. According to Crown Prince Rudolf, the Golden Eagle was "always the most dreaded of the raptorial birds" wherever it occurred in 19th century Spain, "and the peasants have far more tales to tell of its depredations than of the Bearded Vulture's."<sup>[163]</sup> But let's return to Chapman and Buck:

Again, on a single *majada*, or goat-breeding establishment, in Estremadura, we were told that forty odd kids had been killed that spring by one pair of Lammergeyers before the enraged tenant was able to shoot them. We saw one of the birds - a superb adult Gypaëtus.

Here also is the evidence of the veteran *cazador*, Manuel de la Torre, a man of keen observation and intelligence, and the best field-naturalist we have met in Spain: "The Lammergeyer seeks far and wide for prey, preferring bones to anything else, but also eating carrion on necessity; and in spring, when it has young, kills many young sheep and goats, both wild and tame. I have seen it take snakes and other reptiles, and the largest and finest I ever shot (now in Madrid Museum) was in the act of eating a rabbit I had just seen it kill. . . . A dead hare or rabbit is the best bait to attract the Gypaëtus to the gun; it regularly hunts both. . . ." This is the evidence of one, who has seen more of the Lammergeyer than any other living naturalist . . .<sup>[164]</sup>

In stark contrast to Manuel's observations (which definitely have the ring of truth, in my opinion), today's field-naturalists who have seen much of the Lammergeier in Europe have almost unanimously concluded that the birds never kill living prey under any circumstances, except perhaps tortoises. So it seems that despite this strong evidence that European Lammergeiers did once attack living creatures, possibly even young livestock, they only rarely if ever do so today. What are we to make of this discrepancy?

First of all, there is ample evidence that a prolonged struggle to survive in the presence of humans - especially humans who take life at will - leads wild animals to become shyer and less aggressive. While a sizable percentage of Lammergeiers may have once engaged in predation, after the proliferation of guns and poisons any birds that took part in such attacks were quickly killed, and so Europe is left with the shy, wary Lammergeier known today. The bloodlines and behavioral traditions of the old aggressive birds are now gone, and so that behavior is effectively extinct in Europe; though, as we saw [in Chapter 4](#), predatory behavior may well persist elsewhere in the species' vast range. Another possible explanation is that some of these troublesome Lammergeiers were actually escaped captive birds. We know from the writings of Albert the Great that Lammergeiers were at least occasionally captured from the wild and used by falconers for hunting. Falconers' captive

birds of prey frequently escape from their captors; and as they still possess hunting skills, are often able to maintain themselves in the wild. A falconer's escaped Lammergeier would lack the instinctive avoidance of humans that characterize truly wild birds, and having been trained to kill large prey it might well elect to take the easiest available; namely, livestock. The recent Lammergeier reintroduction projects in Europe have demonstrated that hand-reared birds which are falsely imprinted are often aggressive towards humans;<sup>[165]</sup> a falconry-trained Lammergeier with an empty stomach would be unlikely to be deterred from a meal by the mere presence of a shepherd. And although any medieval European traditions of training Lammergeiers for falconry appear to have died out in short order, Victorian-era hunters' literature makes it clear that even into the early 20<sup>th</sup> century, Lammergeiers were still sometimes captured alive and kept as pets or living trophies. Such birds could hardly be expected to act shyly around people if they escaped back into the wild.

One report of unusual behavior on the part of a captive Lammergeier was actually used as evidence that the species would in fact attack children if given the chance. In the 1840s, the French ornithologist Jean Crespon recorded a strange incident with a Lammergeier that he kept in captivity, a bird which "was always irritated at the sight of children." He once left the lid of its cage open with some people wandering in the nearby garden. Crespon wrote that the bird waited for a moment when no one else was watching, then "threw itself on one of my nieces, two years and a half old. Having seized her by the shoulders, it threw her down on the ground. Fortunately her cries warned me of the danger she was in, and I hastened to her assistance." The girl was terrified but uninjured, with only a torn frock to show for the experience. Despite the attack, this Lammergeier seems to have retained the unaggressive demeanor characteristic of its species; Crespon added that the "same bird shows very little courage towards the other birds of prey which reside with it."<sup>[166]</sup> Both Crespon and Charles Robert Bree, who reprinted this anecdote in his 1859 book *Birds of Europe*, seem to have thought that this incident served as proof, or at least very strong evidence, that wild Lammergeiers would attack children if presented with an opportunity to do so. But Crespon also wrote that this particular vulture had been kept in captivity "for some years," and even the most credulous person couldn't possibly consider the behavior of such a bird typical or normal for its species. At most, the anecdote demonstrates that a small child *could* be seen as potential prey by a raptor the size of a Lammergeier; and it has plenty of company in that regard.

The second, most damaging, and most infamous category of anecdotes involving misbehaving Lammergeiers is that of baby- and child-snatching. It's just one part of a worldwide folkloric template in which large birds of prey are accused of carrying off infants or small children, stories to whose charms Europe was no more immune than any other part of the world. One old Romanian folktale told a long and highly complicated origin story just for the sake of explaining why eagles live by "preying on birds and beasts, living on raw meat . . . and even picking up children under six years of age".<sup>[167]</sup> There seems to be something very romantic and enduring about the idea of the fiercest and noblest of birds abducting the smallest and most helpless of humans; after all, who hasn't fantasized about being borne aloft on a pair of great wings, voluntarily or otherwise? On the other hand, no animal is more hated by mankind than a child-killer, and certainly no other raptor in the world has been as severely persecuted for such repute as the Lammergeier in Europe. For many years now, persons with an interest in protecting vultures and (especially) eagles have taken it upon themselves to convince anyone who will listen that, despite the cosmopolitan abundance of child-abduction stories, such incidents are absolutely impossible. The primary arguments used to debunk the stories usually consist of dubious experiments or observations that purport to "prove" that the birds cannot carry anything as heavy as a human infant into the air. You won't find that tack used here; given that

adult Lammergeiers weigh between 10 and 16 pounds (4.6 to 7.2 kg), and are easily capable of carrying aloft bones, or even partial skeletons, of almost their own weight, an average-sized infant is clearly not an impossible cargo. On the other hand, considering that infants are usually kept in close bodily contact by their mothers, especially in rural societies, a Lammergeier would have to be faced with a truly exceptional situation to actually come across an unguarded infant.

Well, perhaps not *quite* so exceptional. In Europe, as in the rest of the world, the practice of infanticide has existed in some form in every culture and at every time, though it was more prevalent in the premodern era, when the options for contraception and neonatal medicine were distinctly limited. Probably the most guilt-free way to carry it out was to take an infant to a remote area, often on a mountainside, and abandon it there to its fate. This practice was once very common in Europe; it is frequently referred to in ancient Greek and Roman literature, and in the Greek city-state of Sparta, every baby that was judged to be imperfect in some way was abandoned, though allowed to live if it then survived overnight.<sup>[168]</sup> In the Middle Ages, so many infants were abandoned that the continent was rife with “foundling homes,” hospitals where abandoned babies could be suckled by wet nurses, who often killed their own infants in order to reserve more milk for their trade.<sup>[169]</sup> Infanticide remained prevalent among the lower urban classes and in rural areas well into the 19th century, so much so that the narrator of one Victorian-era article wrote of seeing dead infants most everywhere: in houses, on nature walks, along watersides, in the deepest woods, and in abandoned parcels on trains.<sup>[170]</sup> Yet any hints that this tradition was once common in Europe are found today only in old folktales, which soothe listeners with assurances that these foundling infants were always discovered by kind-hearted people or benevolent animals who adopted them as their own, cared for them, and raised them to adulthood.

Reality was a bit more grim. It's likely that most abandoned infants died in a matter of hours, and the chances of an infant abandoned in an uninhabited area being found by potential adoptive parents before death were undoubtedly much lower than the chances of it being discovered by some carnivorous animal. There are occasional references in medieval literature which suggest that parents were not unaware of this possibility, notably in the “Clerk’s Tale” portion of Geoffrey Chaucer’s *Canterbury Tales*. In that story, a mother who is tricked into believing that her two infants are going to be taken away and killed specifically pleads that they at least be buried afterwards, so that they won’t be discovered by beasts and birds of prey. When she is later reunited with her living children, she laments, “O dear, O tender ones, so long away, / Your sorrowing mother steadfastly had thought / That some foul vermin, hound or beast of prey / Had eaten you.” Infants abandoned in mountainous areas would likely be discovered first by the most active and mobile of scavenger-predators: large birds of prey, and especially by the Lammergeier, which covers vast distances during its daily foraging and is finely attuned to the presence of even small carcasses. We saw [in Chapter 3](#) that the Persian tale of the *Shanameh* includes what appears to be an account of a Lammergeier, in the form of the mythical Simurgh, carrying an abandoned infant to its nest. Unlike other vultures, Lammergeiers commonly lift small carcasses in their talons and fly off with them; and unlike any other European raptors except the Golden Eagle and White-tailed Sea-eagle (both also accused of baby-snatching), a Lammergeier is, theoretically, large and strong enough to carry an average-sized infant into the air. Despite the vehement denials of ornithologists that the European stories of avian baby-snatching have any basis in reality, it is rather suggestive that they are restricted almost entirely to the three birds that are genuinely capable of it.

Although the chances of anyone witnessing a Lammergeier feeding on an infant’s corpse or actually flying off with it were not great, it would take a mere few such tales to produce legends of the



birds actively hunting infants and children, in much the same way that scattered reports of vultures and eagles feeding on dead livestock has led to beliefs that the birds habitually kill lambs, calves, and piglets. Of course, most anyone horrified by the sight of a dead infant in a Lammergeier's talons would have chosen to blame the bird for the situation, though in truth they need have looked nowhere but at their own cultural traditions to find the true culprit. If hostile attitudes towards the birds erupted because of this, they could easily be likened to the moral outrage that inevitably follows any modern news story about a slum-living infant that had to be hospitalized because of rat bites; it's much easier to demand that the rats be exterminated than that something be done about the poverty that led to the situation in the first place.

Stories of Lammergeier child-snatching that involve children of two, three, or more years of age cannot be explained away as side-effects of infant abandonment; and these should be considered separately. I should point out right at the start that an unprotected infant or small child would be a completely unfamiliar experience for a bird of prey, and when confronted with animals that they are unfamiliar with, many predators choose to avoid them. Furthermore, a parent would have to be exceptionally negligent to leave a toddler unattended in a mountainous area inhabited by very large birds of prey. It's a highly unlikely assumption that a primarily bone-eating vulture would instinctively look at a small child as viable prey – although, as stated earlier, some Lammergeiers in prior times may have been more habitually predatory than they are today. Today, stories of Lammergeiers, or any raptors, attempting to prey upon infants or children are disbelieved by virtually the entire scientific community, although they remain current in rural legends and the tabloid press. Nevertheless, fear of being carried off by Lammergeiers was very real among the many children who worked as shepherds in Europe's mountainous areas. In his autobiography, a 16<sup>th</sup>-century Swiss man named Thomas Platter recalled that as a young shepherd, he once attempted to follow his Goats "over a piece of rock that was a good foot wide, but below which there was, in a frightful abyss more than 1000 fathoms deep, nothing but rocks." Not as surefooted as the Goats in navigating this precipice, he quickly found himself trapped, unable to either advance or retreat; and until help arrived he "suffered extreme anxiety; for I was afraid that the great vultures that flew about in the air below me, would carry me away, as it sometimes does happen in the Alps, that they take away children and lambs."<sup>[171]</sup> In the 19th century, there were many people who doubted that such stories had any basis in reality, but many more wholeheartedly believed them, and some ornithologists were willing to accept them.<sup>[172]</sup> Charles Robert Bree mentioned two such anecdotes from Switzerland which he considered to be "well-authenticated," yet which in his book *Birds of Europe* were reported so vaguely as to be almost useless. The first took place in Appenzell, near the border with Austria, where "one [Lammergeier] carried off a child before the eyes of its parents and neighbours." The other hailed from "the Silber Alpan," where "a Vulture attacked a shepherd boy, began tearing him in pieces, and finally precipitated him into an abyss before assistance arrived."<sup>[173]</sup>

By far the most meticulous account of Lammergeier child-snatching to come down to the present day - and certainly the only one detailed enough to make educated guesses about how and why it happened, if we accept that it *did* happen - was found in the German ornithologist Johann Andreas Naumann's book *Naturgeschichte der Vogel Deutschlands* ("Natural History of German Birds"), published in 1823. This story has been repeated in truncated form within many other books (often with errors inserted), but the most complete English version is found in Henry Eeles Dresser's *History of the Birds of Europe*. Dresser believed that the Lammergeier "partakes far more of the Vulture in its habits than of the Eagle, feeds on carrion and such refuse as it can pick up, sometimes doubtless attacking weakly lambs, or catching mountain-hares,"<sup>[174]</sup> and thought that it was "as a rule,

cowardly and tolerably inoffensive."<sup>[175]</sup> Still, he believed that there were "authentic records of its having attacked children, when impelled by hunger." He then offered the following translation of Naumann's anecdote:

Anna Zurbuchen, of Habchern, in Bern Oberland, born in 1760, was taken out by her parents, when she was nearly three years old, when they went to collect herbs. She fell asleep, and the father put his straw hat over her face and went to his work. Shortly after when he returned with a bundle of hay the child was gone; and the parents and peasants sought her in vain. During this time Heinrich Michel, of Unterseen, was going on a wild path to Wäppesbach, and suddenly heard a child cry; he ran towards the sound, and a Bearded Vulture rose, scared by him, from a mound and soared away over the precipice. On the extreme edge of the latter, below which a stream roared, and over whose edge any movement would have precipitated it, Michel found the child, which was uninjured except on the left arm and hand, where the bird had probably clutched it; its shoes, stockings, and cap were gone. This occurred on the 12th of July, 1763. The place where the child was found was about 1400 paces distant from the barn where it had been left asleep. The child was afterwards called *Lämmergeier-Anni*, and married Peter Frutiger, a tailor in Gewaldswyl, where she was still living in 1814.<sup>[176]</sup> [Translated by Henry Eeles Dresser]

Charles Robert Bree also mentioned this incident in his book, and added that as of his writing (in the late 1850s), *Lämmergeier-Anni* "was living at an advanced age a few years ago."<sup>[177]</sup> It seems a pity that no one thought to track her down before her death in order to ask her if she had even the haziest recollections about what had happened to her on that day.

Assuming for the moment that this sequence of events was accurately reported, it's immediately clear that this was *not* a case of a *Lammergeier* deliberately hunting down and attempting to kill a child, although it was viewed as just that during the 19th century. For starters, Anna's father "put a straw hat over her face" before he left her lying asleep. To a creature as dependent upon sight as a *Lammergeier*, the face would be the identifying characteristic for a human, as it is for us; a small girl laying prone with her face covered by an adult-size hat would not look like a human to a bird. When Anna was found, she "was uninjured except on the left arm and hand, where the bird had probably clutched" her. It seems, then, that the *Lammergeier* grabbed her by the arm, not by the body; certainly not a mistake that would be made by a bird used to preying upon humans, or upon sizable mammals in general. With Anna's face covered, her appendages could easily have been mistaken for something else, like a chunk of carrion or a small animal's carcass; and a *Lammergeier*'s natural response to such a find would be to snatch it in its talons and carry it off. In Spain, the hunter Willoughby Verner wrote of "watching these powerful birds carrying the weighty limb of an animal in mid-air";<sup>[178]</sup> it's no unreasonable assumption that this particular *Lammergeier* was attempting to do just that.

There's no mention of Anna's size or weight, but if even if she was very small by today's standards for a three-year-old girl she must have weighed almost 30 pounds (13.6 kg), nearly twice the weight of the largest *Lammergeiers*, which does cast doubt about the ability of the bird to actually carry her into the air. But there's a conspicuous hint that it *didn't* manage to wing her aloft, or only managed to do so briefly: the anecdote mentions that after Anna was found, her "shoes, stockings, and cap were gone." Her cap could of course been easily knocked off, either by her own struggles or by the bird's wingbeats; but the only conceivable way that the girl could have lost both her shoes and her stockings is if she was dragged, legs dangling, across the ground, and those articles were pulled off her feet by abrasion. Therefore, not all of the "1400 paces" between where she was left and where she was found were covered in the air; a sizable part of that distance was likely covered by a *Lammergeier*

struggling, unsuccessfully, to carry its unexpectedly large catch into the air, and instead merely dragging it along for most of the distance.

Finally, the Lammergeier released the girl and landed nearby when it reached the edge of the precipice, only to "soar away" when Michel showed up. The reason why it didn't carry Anna over the precipice is obvious: she was too great a load. If the bird had attempted to do so, it would have fallen into the stream and ended up soaked at best or drowned at worst; so it stopped short. In this case, the Lammergeier probably quite literally didn't know what it was doing; it didn't realize that its "prey" was human, didn't comprehend the actual size and weight of its catch, and didn't know how to carry it off to a safe perch in the usual Lammergeier fashion. It did, however, have the sense to abandon its strategy upon realizing that Anna was far too heavy to carry over the precipice; and in so doing, it spared her life. As bizarre and grotesque as this incident may seem - and along with all the other child-snatching stories, it certainly was considered valid reason for slaughtering Lammergeiers in the 19th century - perhaps we should take a moment to consider what might have happened if instead of this bird, a mammalian carnivore, such as a feral Dog, had discovered little Anna asleep and unattended, with a straw hat covering her face.

The third anecdotal category, the one containing claims that Lammergeiers killed fully grown people by knocking them off of cliffs, is much better documented, and not just in Europe. As we saw [in Chapter 4](#), there is some fairly persuasive evidence that Asian Lammergeiers did occasionally engage in this habit, and European Lammergeiers have often been credited with swooping at large mammals walking along mountain ledges, including Sheep, Goats, and Chamois, and attempting to force them to fall to their deaths. What is probably the earliest surviving European account of such behavior is found in Pliny the Elder's *Natural History*, where he wrote of an "eagle" that would "not only carry off the smaller four-footed animals but actually do battle with stags." In order to perform this feat, "The eagle collects a quantity of dust by rolling in it, and perching on the stag's horns shakes it off into its eyes, striking its head with its wings, until it brings it down to the rocks."[\[179\]](#) This account is doubly interesting, as it demonstrates that Pliny or one of his many sources was familiar not only with the Lammergeier's ability to attack large mammals, but also with its unique habit of bathing in iron-rich dust. Although long known to exist, this behavior has been scientifically explained and demonstrated to be intentional on the vulture's part only in the past decade.[\[180\]](#) Aside from that, the description of the bird "striking its head with its wings" jibes well with eyewitness accounts of Lammergeiers attacking large mammals on mountainsides; most such accounts speak of the birds striking only with their wings, *not* their talons or bills. The people of Tibet recognized that a Lammergeier's wings were its most powerful weapons, as Tibetan mythology tells of demon-killers who attack their prey (metaphorically) with the horns of a Wild Yak, the fangs of a lioness, the claws of a Tiger, and the wings of a Lammergeier.[\[181\]](#)

The British ornithologist Richard Meinertzhagen recorded a Lammergeier's innovative use of these weapons while he was hunting in the Himalayas. He had just shot and mortally wounded a Himalayan Goral, a mountain-dwelling antelope, and was attempting to find a safe path to recover the carcass

when an adult lammergeier came sweeping along the hill face and deliberately struck my gooral with the tip of a wing. The gooral was not quite dead but the lammergeier turned at once and again struck the gooral, making it roll down the slope where it fetched up on a ledge. The lammergeier followed it down with amazing rapidity and no doubt would have attacked again if I had not intervened.[\[182\]](#)



A number of people (including Meinertzhagen himself) have claimed, with varying degrees of credibility, to have been similarly attacked by Lammergeiers while trekking in mountainous areas;<sup>[183]</sup> though it should be pointed out that many of these "victims" were attacked only while attempting to plunder eggs or chicks from the vultures' nests.<sup>[184]</sup> When discussing this behavior, Charles Robert Bree noted that not only would the Lammergeier endeavor to drive larger animals over precipices ([right](#)), "occasionally it will try this with huntsmen who are in dangerous positions, and who have declared that the noise, together with the strength and rapid motion of the enormous wings, have exerted a certain magical and almost irresistible influence over them."<sup>[185]</sup> The influence was certainly irresistible enough to make stories of kamikaze Lammergeiers an enormously popular motif among the hunters who chased Chamois in the high mountains. J. G. Wood reported in his 1885 book *Animate Creation* that a Lammergeier

hurls itself suddenly against some devoted animal which is standing helplessly near a precipice, and by the force of its blow strikes the poor creature into the depths below, whither it is immediately followed by its destroyer. Even mankind is said to be endangered by these sudden attacks of a hungry Lammergeyer, and more than one chamois hunter is reported as having been killed by these birds.<sup>[186]</sup>



Charles Robert Bree, on the other hand, was of the opinion that the Lammergeier "seldom attacks grown people, never unless its nest is disturbed or the man is in a dangerous position." By way of example he mentioned that, "Two will often attack a man whom they see hanging helpless upon a rock; and on the other hand one will venture single-handed to assail two huntsmen who are asleep."<sup>[187]</sup> Even in the 19th century, when the Lammergeier's reputation in Europe was positively diabolic, not everyone believed these tales. Thomas Jerdon, who often observed the species in northern India, was of "much doubt [about] the stories related of its pushing large animals over cliffs," and Henry Dresser was of the opinion that "many of these accounts are greatly exaggerated,"<sup>[188]</sup> though he wasn't willing to dismiss them entirely.

There are a great many eyewitness accounts as well as historical evidence (some already mentioned [in Chapter 4](#)) that describe Lammergeiers attacking humans and other large mammals on mountainsides. Similar behavior has been documented and filmed for mountain-dwelling Golden Eagles, which are both smaller and less agile than Lammergeiers, so there certainly isn't anything intrinsically impossible about Lammergeiers engaging in such attacks. Yet most modern ornithologists categorically dismiss any and all reports of this behavior as utter nonsense; a well-meaning tactic, perhaps, but still careless at best, and at worst willfully blind. That said, there may be some confusion here between acts of intentional predation and the characteristic Lammergeier habit of flying very close to people and other large mammals trekking in their rugged domains, due either



to an imperative to territorial defense or to natural curiosity. It's noteworthy that in Greece, where vultures have been granted relatively equable treatment, Lammergeiers will readily approach people - especially shepherds, with whom they seem to be on familiar terms - and neither bird nor human exhibits any signs of excitement at these encounters.<sup>[189]</sup> To someone from elsewhere in Europe, where the Lammergeier was not at all familiar except as a half-mythical monster, the sudden appearance of a nine-foot-wide, black-orange-and-white bearded specter might well be startling enough to literally knock them off their feet; a stumble that could have lethal results if it took place upon a mountainside. The murderous reputation of the bird would then become a self-fulfilling prophecy.

And so, there is some evidence, though perhaps not actual proof, that the European Lammergeier's sinister reputation had some basis on fact. Yet it was also blown ridiculously out of



proportion. An occasional Lammergeier may have attacked live prey in the form of livestock or deliberately abandoned infants, or opportunistically attempted to knock a person off of a cliff; but the rarity of documented occurrences of such events likely means that the events themselves were rare, and that Europeans who thought of the species as a whole as a gaggle of winged, human-hating demons were sensationalizing and generalizing based upon very isolated incidents. It certainly didn't help that the Lammergeier was so poorly studied in the wild; most Europeans living two or three hundred years ago would probably have found the idea that the bird was an essentially peaceful scavenger of bones as ludicrous as today's scientific establishment would find the idea that it was a cunning and ultra-violent killer of humans and livestock.

All of this bestowed a larger-than-life stature upon the Lammergeier in Europe, even as it was well on its way to becoming extinct there. Writing in the late 19th century, the British naturalist Edmund Harting claimed that "Ninety-nine persons out of a hundred . . . would probably infer, from the marvellous stories they have read of lambs, kids, and even children being carried off by it, that the Lammergeier . . . must be unquestionably the largest living bird that flies."<sup>[190]</sup> In point of fact, it wasn't; as Harting noted, it wasn't even the largest in Europe.<sup>[191]</sup> But a legacy of death and destruction, spurious though it may be, will

always inflate its perpetrator's dimensions in the popular mind. Pondering the reputation of this bird, the English baron Thomas Lilford imagined

that in the Alps of Switzerland, Savoy, and Northern Italy any bird of prey is pointed out by the guides to tourists as 'Le Gypaète,' as I have been several times assured of the abundance of this bird in some localities of the above-named countries where a genuine *Gypaetus* would in fact 'astonish the natives' as much as a comet.<sup>[192]</sup>

The mountaineers who assailed the peaks of the Lammergeier's homelands were willing to believe the child-snatching stories, and would sometimes even throw in offhanded references to them in their

literature; one L. Simond, writing in an 1817 issue of the alpine journal *Switzerland*, referred to “An inaccessible shelf of rock . . . upon which a lammergeyer . . . once alighted with an infant it carried away.”<sup>[193]</sup> And *Anne of Geierstein*, Sir Walter Scott's romantic novel set in Switzerland, derived the latter word of its title (“vulture rock”) from, as it was described in the first chapter, “a huge pinnacle of rock . . . almost in the form of a steeple, to the top of which the lammergeier (one of the largest birds of prey known to exist) had in former days transported the child of an ancient lord of the castle.” In 1829, when this novel was published, Europe had few genuinely dangerous wild predators left; in most areas, every carnivorous mammal larger than a Badger had been deliberately hunted to extinction. With its repute for power and lethality, the Lammergeier could fill the void left by the predators' passing, and so provide an aura of vulturine risk, Alpine danger, and brink-of-death romance; all qualities that were very useful for fiction and Victorian-style nonfiction alike.

In earlier centuries, another scavenger-predator had filled that void; the only other European animal whose reputation of supernatural evil could ever match that of the Lammergeier. In cultural terms, this creature and the Lammergeier bore a greater resemblance to each other than either did to their true biological relatives. Compare these two excerpts, and note their remarkable similarities in syntax and tone:

He is sinister, magnificent, and dignified . . . ready to take advantage of any animal in distress. . . . At times he can be bold and enterprising but in the vast majority of cases he is cowardly and craven. . . .<sup>[194]</sup>

The eyes have a peculiarly sinister expression . . . They are destructive brutes, and kill large numbers of sheep. . . . They are generally cowardly. . . .<sup>[195]</sup>

The first passage, written by Richard Meinertzhagen in 1959, refers to the Lammergeier; the second, written by A. A. A. Kinloch in 1892, refers to none other than the Gray Wolf. Lammergeier and Gray Wolf alike occupied foreboding areas on the periphery of humanity; the former mostly in remote mountains, the latter mainly in trackless forests. Both had a disconcerting tendency to appear, with presumably ill intentions, seemingly out of nowhere. Both had an apparent affinity with the cold and snow of wintertime, and with the death that it wreaked upon the land. Both were notorious for feeding upon human corpses; both were thought to readily kill living humans if dead ones were unavailable (or sometimes even if they were). Both were, and are, as popular in zoos and menageries as they were unpopular in the wild, and both were deliberately driven to extinction throughout most of their former habitat in Europe. But much the most curious and telling resemblance between Lammergeier and Gray Wolf is found in the seemingly insurmountable gap between their popular reputations and their scientifically accepted behaviors. As we've seen, there is evidence, convincing if not conclusive, that in the past Lammergeiers did in fact do some of the sinister acts that they were accused of, just as there is a substantial amount of evidence that Wolves in Europe (and elsewhere in the Old World) did sometimes prey upon people.<sup>[196]</sup> But there are no *recent* credible European reports of Wolves or Lammergeiers killing people, explaining why stories of the creatures doing so have lost their air of authenticity; and why, despite all of the evidence, many modern people refuse to accept that the misanthropic behavior of either Lammergeier or Wolf ever had any basis in reality.





In her book *The Eagle in Fact and Fiction*, Johanna Johnston considered the Lammergeier ([left](#)) “curious and colorful,” which looked like a “mythical bird of a fairy tale come to life.”<sup>[197]</sup> Johnston may or may not have known it, but she was tapping into a very old idea with that opinion; many people have thought that of the Lammergeier, tangible though it is, as a mythical bird, capable of deeds that would never be attributed to a more mundane creature. In the words of Chapman and Buck, “No doubt the great size and weird, dragon-like appearance of the Gypaëtus have tended to promote exaggeration, while its rarity and remote haunts have made it no easy subject to study, and few have formed its acquaintance in its own almost inaccessible domains.”<sup>[198]</sup> The naturalist W. H. Hudleston thought that the species “has an extremely ugly countenance; this becomes perfectly diabolical when he is irritated and shows the bright red round his eyes. . . . what with his black beard, rufous breast, and long dark tail, he is an awful-looking beast, and

has the reputation of committing divers evil deeds.”<sup>[199]</sup> Again, the vulture stands alongside the Wolf. I need not detail the Wolf’s many and colorful, if hardly complimentary, appearances in European folklore here; most everyone reading this book is at least hazily familiar with the tales of *Little Red Riding Hood*, *The Three Little Pigs*, and *The Wolf In Sheep’s Clothing*. The Lammergeier, which was lesser known and much less likely to be encountered by the average peasant, could nevertheless play the lupine role in many such stories with little change in nuance or plot. (All together now: “Oh, Grandma, what a feathery beard you have!”) The Wolf and the Lammergeier paralleled each other so closely in the literary and folkloric traditions of Europe that it often seems the one is only a synonym for the other.

One final and more nebulous factor must be taken into account to explain all of the European vitriol heaped upon the Lammergeier’s hunched shoulders over the centuries: its highly anomalous position among the raptors. Were it not for the “Bearded Vulture,” the largest raptors would have been divided fairly cleanly, based upon both appearance *and* habits, into eagles and vultures. Certainly, sometimes eagles would scavenge and sometimes vultures would kill (although both facts were commonly denied in Europe), but there would never be any doubt as to which was which. Woe be to the classifiers, the Lammergeier does exist, and it is troublesome in the extreme to such neat



categorization. As Crown Prince Rudolf put it, "no other raptorial bird really resembles it. . . . Its place appears to be between the eagles and the vultures, and it is, in my opinion, equally unlike and equally distant from both".<sup>[200]</sup> It looks more like an eagle than a vulture, but it isn't an really an eagle, and it acts more like a vulture than an eagle, but it isn't really a vulture. It is a mosaic; a chimera, the oldest and most hated variety of monster. Recall if you will [Menippus's sojourn](#) in Lucian's story *Icaromenippus*, and remember that he flew with the wings of both an eagle and a vulture; once he reached the moon, he lamented that he had "come in a half-finished condition and with an equipment not fully royal; in fact, I am like the bastard, disowned eaglets they tell about."<sup>[201]</sup> Aristotle and Pliny the Elder both wrote that those bastard, disowned eaglets would grow into Lammergeiers, who found themselves depicted in European culture as the illegitimate offspring of the most hated *and* the most admired birds; a difficult and unpromising parentage, to say the least.

Falconry, which lay at the root of these categorizations of the birds of prey, was in decline as a noble activity by the dawn of the Renaissance. As long-ranged killing weapons, guns were less expensive and much more easily used than trained raptors; and when the new firearms infiltrated Europe, they caused no end of societal upheaval, including the toppling of falconry and its birds from their exalted perch. By the end of the 17th century, the sport was practiced only by scattered traditionalists and diehards, and it no longer exerted much of an influence upon the greater culture, although its characterizations of birds of prey have proved remarkably durable. The fade of falconry didn't result in any improvement of situation for Europe's vultures ([right](#)), however; quite the contrary. The damage to the vultures' status and standing had already been done by incessant and merciless vilification, and any slight amelioration of that damage, or a modest reappraisal of Europe's most hated



birds, would have to wait until the ecological reawakening of the mid-20th century. There was still a great deal of potential *physical* damage that could be done, and with raptors no longer required as hunting tools, they were now viewed as threats to the game animals which provided the gun-toting nobility with so much amusement. The zealously guarded game reserves of the nobles provided an excuse for killing vultures in themselves, as it was widely believed that the best way to ensure a steady supply of game in a reserve was to eliminate all of the reserve's predators (colloquially known among gamekeepers as "vermin"), regardless of whether or not they actually posed a threat to the game animals. Thus the reserves, which previously had been the province of trained raptors, were now to be rid of the raptors that were thought to compete with humans for prey. Whatever ill effects the

popularity of falconry had for Europe's vultures, the sport did at least establish that, aside from the Lammergeier, they weren't much of a predatory threat. As falconry lost its popular cachet, the distinctions between the raptors were lost, and vultures began to be thought of as predators - with a twist.

Europeans of this latter era often applied a "damned if they do, damned if they don't" double standard to vultures. They would be scorned for cowardice and laziness when they scavenged, and scorned for cruelty and rapacity when they were thought (rightly or wrongly) to take live prey, especially when that prey consisted of domestic animals. The usual victims of their imagined depredations were lambs; although their human keepers routinely killed them for veal, the small, wooly creatures were still iconized in Europe as the gentlest, most innocent of beasts. (It didn't hurt their reputation that they were also proven money-makers, as attested by the common English proverb, "Sheep's hooves turn sand into gold."<sup>[202]</sup>) This idealization can be partly attributed to the symbolism of Christianity; lambs were often depicted as companions of Jesus in paintings and frescoes, the New Testament refers to Jesus as the "Lamb of God," and the Latin equivalent of that phrase (*Agnus Dei*) was and still is spoken at every Catholic Mass. Lambs were the baby Harp Seals of their day; it's no wonder that vultures were vilified for eating them. It didn't much matter whether the great birds were actually caught in the act of preying on lambs; for many people, the sight of vultures feeding upon a dead lamb was incontrovertible evidence that the scavengers had gone predator, and that they should be summarily punished for it.

The carrion-eating habits of the birds proved to be a mixed blessing in an increasingly humanized Europe; on the positive side, they were usually able to find sufficient food, at least until stock-keeping changed from an agrarian practice into an industry in which corpses were "disposed of properly" (in the wake of mad cow disease, we all know what that means). Though it gave Europe's vultures a chance for continued survival that they would not otherwise have had, livestock wasn't a perfect substitute for wild prey; because unlike wild prey, livestock was subject to human whims regarding life and death. Into the 20<sup>th</sup> century, Eurasian Griffons may have appeared faithfully in Slovakia's Tatra Mountains every spring to attend to the Sheep roving over the alpine meadows; but the vultures could never breed there, because there was not enough food when it was needed most.<sup>[203]</sup> The Griffon's long breeding cycle necessarily begins in February, in the dead of winter; in February, the Sheep were far from the mountains, snug in barns where no scavenger's shadow need sweep over them. Hence there were no new Griffons taking wing to replace those lost to bullets and poison. Griffons are almost entirely dependent upon the carrion of large mammals, and it was they who were most affected by the presence or absence of such carrion. It was a great help to them and to other vultures if dead livestock were not buried or cremated, but merely dumped into the nearest ravine, as they were in the Cévennes Mountains of southern France until about 1940. Not coincidentally, the Griffons disappeared from those mountains soon after the introduction of "sanitary" methods of dead Sheep disposal; though persecution from the shepherds themselves, due to beliefs that the Griffons killed lambs, was also a factor in the disappearance of the vultures.<sup>[204]</sup> Ironically, if the Griffons had been allowed to do their job the shepherds would have had to deal with far less Sheep mortality from the attacks of Wolves and other predators; for the vultures would have rid the fields of dead Sheep during the day, before they could attract mammalian scavengers which posed a genuine predatory threat.

Scavengers weren't always persecuted in post-Roman Europe. They were often valued in cities and large towns, as one of the few checks upon the filth and garbage that made such settlements so miserable. The best documented example of this surprising esteem was found in London. With no



native vultures to be found in Britain, the choice roles of the island's avian scavengers were filled by crows, ravens, buzzards, eagles, and especially kites. [Red Kites](#) were once very common in Britain; a Bohemian visitor to England in the 15th century remarked that he had never seen so many kites as he spotted swarming around the London Bridge<sup>[205]</sup> (a spectacle that was commonly presented to foreign visitors as "one of the sights of the town"<sup>[206]</sup>), and others noted that London's kite population was almost as healthy as that of subtropical cities like Cairo.<sup>[207]</sup> The roughly raven-sized birds were notorious scavengers and pirates, utilizing their boldness and remarkable agility in flight to steal scraps of food from the streets, the surface of the Thames, other birds, and sometimes even from the hands of humans.<sup>[208]</sup> Despite such annoyances, the kites were protected by tradition or law in some urban areas (London among them), until improved sanitary conditions made them more of a nuisance than an asset. The people of Britain developed a familiar contempt for their civil kites, and the word *kite* came to be used as an insult in the English language, roughly equivalent to the metaphoric use of *dog*:

These native scavengers were quickly overshadowed when captive vultures first arrived in England. No one knows for certain when the word *vulture* first entered the English language. The spelling and pronunciation show that it was derived from the Latin *vultur*, as opposed to the French *vautour*, and thus it was probably in limited use among the learned before the French-speaking Normans conquered England in 1066 - though a French influence is evident in early usage, such as that found

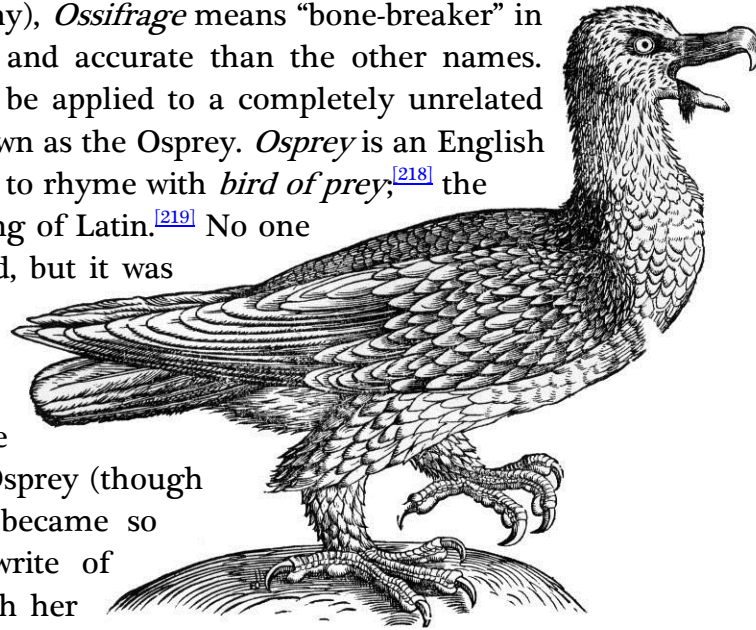


in the various versions of the *Boke of St. Albans* of the 15th century. *Vulture* most definitely was in wide use in English by the late 14th century, although like many other Middle English words its spelling is rather inconsistent (Geoffrey Chaucer spelled it "volturis," John Trevisa "vulture," and a few writers even "vowlture").<sup>[209]</sup> It is interesting to note, though, that *vulture* was not used in a figurative manner until about 1600, with its associated adjectives (*vulturous*, *vulturine*) following soon after.<sup>[210]</sup> Prior to its use, vultures were labeled *geyres* or *geirs*, from the German *geier* meaning the same thing, or, in the case of the Lammergeier and Egyptian Vulture, some variant of *eagle* or *griffin*.

The latter term has its own peculiar history. Like Komodo Dragons and the Quetzals of Latin America, the vultures nowadays known as *griffons* ([above](#)) took their name from a creature that had already existed, if only in myth. After *\*gultur* and *\*uel*, the third notable Indo-European root word for vultures is *\*ghreib*, which was apparently borrowed from the Near Eastern Hittite people in the second millennium BCE by the ancestors of the ancient Greeks. In Greek speech, *\*ghreib* morphed into *gruph*, but its original meaning persisted: "to seize" or "take hold of." *Gruph* was then borrowed from the Greeks by the Romans, and from Roman Latin usage it descended into many other European languages, notably in the form of *griffin*.<sup>[211]</sup> The practice of applying this word to vultures

specifically is generally thought to have begun in the mid-17th century, when French academicians started referring to the large *vautours* of their country as *griffons*.<sup>[212]</sup> (In French, the word is spelled with an *o*, not two *i*'s). There are even older records of such usage in English, dating back to the mid-14th century, although it isn't always clear whether the creatures being referred to are the mythical griffins or the vulturine griffons.<sup>[213]</sup> Nor is it certain whether people started referring to *Gyps fulvus* as a *griffon* because of genuine confusion of the vulture with the lion/eagle hybrid monster of legend, or merely because the word was thought to be a particularly apt description for the huge bird. In any case, the name stuck, still carrying the French spelling, and was applied to similar vultures like the Himalayan Griffon and Rüppell's Griffon as they were discovered. In the periphery of Europe, the name was applied to other vultures; in Russia, the Monk Vulture was the *griffon*,<sup>[214]</sup> and in the Aragon province of Spain, the Lammergeier was commonly known as the *grifo*.<sup>[215]</sup> And, yes, the pronunciations of *griffin* and *griffon* are identical.

The Lammergeier had its own array of odd, almost Tolkienesque names: just in English, it was called the *Dispised Eagle*,<sup>[216]</sup> *Bearded Eagle*, *Alpine Vulture*, *Golden-headed Eagle*, *Bearded Griffin*, and *Flying Dragon*,<sup>[217]</sup> among others. The most promising of these names, *Ossifrage*, met a curious fate. Dating back to at least the first century BCE (when it was recorded by Pliny the Elder as a name applied to the "bearded eagle" by the people of Tuscany), *Ossifrage* means "bone-breaker" in Latin, and thus was a great deal more informative and accurate than the other names. Unfortunately, in medieval times the name came to be applied to a completely unrelated bird of prey, the specialized fish-eating hawk now known as the Osprey. *Osprey* is an English corruption of *Ossifrage*, with the last syllable changed to rhyme with *bird of prey*,<sup>[218]</sup> the fish-hawk's French name, *Orfraie*, is a similar mangling of Latin.<sup>[219]</sup> No one seems to know how or why the name was misapplied, but it was



most likely because English and French people unfamiliar with the real *Ossifrage* saw fanciful pictures of it in the contemporary bestiaries, and mistook its black mask-like feathers for the superficially similar feather patterns on their native Osprey (though the Osprey lacks a beard). Soon enough, the two became so confused that a 17th-century Englishman could write of "*Ossifrage*, a kind of Eagle which breaketh bones with her beak, the same as Osprey." English-speakers had evidently grown weary of this menagerie of monikers by the early 19th century, when *Lammergeier* entered the English language and quickly became the bird's accepted name.<sup>[220]</sup> For some decades now, the name *Lammergeier* has been held in opprobrium and rejected in favor of *Bearded Vulture* by most ornithologists and conservationists, because the German words of which it is supposedly composed (*lammer*, "lambs" + *geier*, "vulture") strongly imply that the bird kills and/or devours lambs. Or so they say. The actual meaning of the name may be a bit more complicated, thanks to the convergence of two languages in the area from which it sprung.

It is fairly certain that *Lammergeier* arose from the speech of the people of Switzerland, who were as familiar with the bird as anyone, and that the name entered the English language as a result of usage by English mountaineers who picked it up during their expeditions in the Swiss Alps. But at that time, in the early 19th century, *lammer* was not one word, but two; homonyms that were spelled and pronounced identically but which had different meanings and ancestries. One *lammer* was derived from an identical German word, and meant a lamb or sheep. The other *lammer*, sometimes spelled *lamber*, was derived from the French *l'amber*, and was used to describe something amber-



colored; that is, golden. Upon seeing a Golden Eagle in flight overhead, a casual observer might be compelled to wonder just where the bird's name came from. Handsome though it is in its brown, white, and black plumage, the only golden coloring is found in the feathers at the back of the Eagle's head and neck, which are not at all noticeable unless the bird is seen at very close range and in good light.

A wild Lammergeier, on the other hand, displays a range of golden hues strikingly set off by the white feathers upon which they are bonded. Much like gold ore itself, the iron oxide tints of a Lammergeier's feathers may vary in color from a pale buff-yellow to a deep reddish-orange. Willoughby Verner noted that "in brilliant sunlight the bright tawny throat and underparts assume a veritable golden hue, far more so than do the pale tawny feathers on the nape of the Golden Eagle whence the latter derives its somewhat imaginative name."<sup>[221]</sup> Many mountain-dwelling people in and out of Europe dubbed the Lammergeier the *golden eagle* or some equivalent name because of its unique cosmetic anointment, which led to no end of confusion when they encountered English-speakers with their own conception of what a "Golden Eagle" was. Indeed, English settlers in India took to calling Lammergeiers *Golden Eagles*<sup>[222]</sup> (perhaps prompted by the similar-sounding Hindi name for the bird, *argul*); a British Army officer named Leonard Howard Irby noted that in northwestern India, all Europeans who weren't ornithologists called the Lammergeier "the 'Golden Eagle,' probably on account of the reddish tinge on the breast, which is very apparent when the bird is on the wing."<sup>[223]</sup> Some European settlers in South Africa did much the same thing, and the usage persisted well into the 20th century. There is thus good reason to believe that it was the golden tinge of its feathers, and not its reputed lamb-snatching, that led to *Gypaetus barbatus* being granted the name of *Lammergeier*. Besides, if the name really *was* based upon the bird's legendary predatory habits, human nature dictates that the most grisly and sensational of those habits, baby-snatching, would've provided the basis for the bird's popular name; hence it would have carried a name like *Kindergeier*, "children vulture," rather than the comparatively boring and mundane "lambs vulture." Unfortunately, there isn't really any way to prove that the name *Lammergeier* wasn't originally intended to mean "lambs vulture." Its origins are lost in the mists of time, and since the name arose where the French and German zones of speech came into contact with each other, it may well have meant different things to different people in the same general area. Nevertheless, in my opinion it would be unfortunate to let *Lammergeier* fall by the wayside; it is unique, evocative, and (at least to an English-speaker's ears) romantic-sounding, none of which can be said for *Bearded Vulture*. Therefore, I offer another alternative to abandoning the name: instead of interpreting its meaning as "lambs vulture," when you see the word *Lammergeier*, think "golden vulture."

Despite the appearance and immediate popularity of *vulture* and its associates, *kite* and *buzzard* remained the preferred English terms of raptorial derogation for a long time. William Shakespeare mentioned *vulture* several times in his works, but the word is never used as an insult; that role is taken by *kite*, as in *King Lear*'s, "Detested kite! thou liest," (Act I, Scene 4) and *Antony and Cleopatra*'s, "Ah, you kite!" (Act III, Scene 13). When an unfavorable comparison to the ever-lionized *eagle* was required, either *kite* or *buzzard* could be used; or both, as in *Richard III*'s line, "More pity that the eagle should be mew'd, While kites and buzzards prey at liberty" (Act I, Scene 1). The pejorative meaning of *kite* has long since vanished from the English language, just as England's native Kites have largely disappeared. *Buzzard* remains current as a derogatory word, though not nearly so much in Britain as in North America, where, ironically, it is applied to vultures. Shakespeare does use *vulture* as a simile in *King Lear* ("O Regan, she hath tied Sharp-tooth'd unkindness, like a vulture, here [Points to his heart.]" [Act II, Scene 4]), as a metaphor of rapacity in *Macbeth* ("We have willing



dames enough; there cannot be That vulture in you, to devour so many As will to greatness dedicate themselves, Finding it so inclin'd." [Act IV, Scene 3]), and as an element of a curse in both *Merry Wives of Windsor* ("Let vultures gripe thy guts!" [Act I, Scene 3]) and *King Henry IV* ("Let vultures vile seize on his lungs also!" [Part II, Act V, Scene 3]). This indicates that Shakespeare was familiar with the eating habits of vultures, and with their reputed greed and rapacity. But his usage also suggests the word (and the bird) was imbued with a fearsome power that *kite* and *buzzard* lacked, perhaps because of the relative unfamiliarity, mysteriousness, and exoticism of vultures. Actual, familiar contempt for them would only come later. To the people of Renaissance England, vultures must have embodied all the kites' more detestable traits that much more forcefully, and on a far larger scale.

As the supreme scavengers, vultures remained paramount for centuries as symbols of all that was deathly, dark, consuming, and cruel. Anyone or anything who was thought to misuse their power was vulnerable to the "vulture" label: merchants ("rapacity of the vulturine monopolizer"), nobility ("Under the eagle, or rather the vulture eye of the Baron"), passions ("The bereaved heart lay still heavy . . . but now the dark vulture Remorse sat upon it rending it"), even the clergy ("under the present Papacy . . . now vulturizing").<sup>[224]</sup> In terms of sheer creativity, however, Edward Topsell still has everyone beaten when it comes to English-language usage of vultures. In the midst of one of his

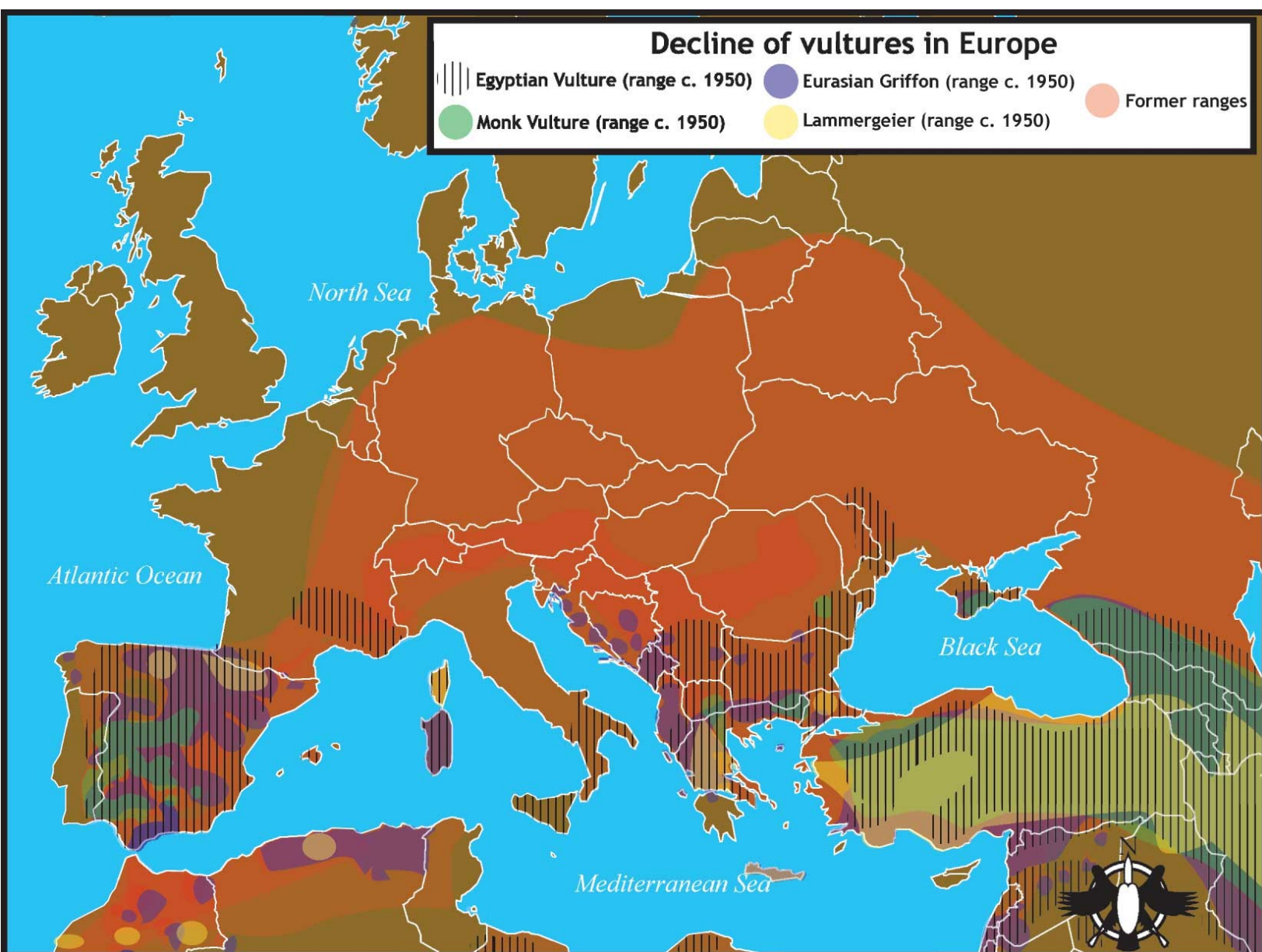
many moralistic diatribes, he declared, perforce, that "*Dice* are all soe called *vulturs* because beinge dead things they consume Mens estates as livinge vulturs due dead Carrions."<sup>[225]</sup> Now, who can argue with that?

The vultures might have; certainly, it must have seemed to them that *their* estates were being consumed wholesale by humans, and that there was no luck or chance involved in the consumption. Europe's vultures have suffered a long, steady decline in range and numbers that seems to have begun in the 14th century and continued well into the 20th. It's often said that the cooling of Europe's climate during this period (the "Little Ice Age") was primarily responsible for the vultures' abandonment of northern Europe, but that explanation on its own is unconvincing. As we saw [in Chapter 2](#), the large vultures had maintained a presence in the north during the *genuine* ice age, and vultures wandered as far north as Denmark even into the 19th century. More likely, lack of food, persecution, and perhaps also loss of good nesting sites due to urbanization forced the birds south and away from Central Europe, into the mountainous and economically backward sanctuary regions of Spain and Greece. Some European vultures



were still able to achieve small, temporary victories by expanding their ranges from time to time. The period succeeding the Thirty Years' War (post-1648) provided one such opportunity; Eurasian Griffons (left) were able to recolonize Swabia in southwestern Germany because that war, by reducing Germany's population by a third, opened up much land for raising Sheep. These Sheep were largely left to fend for themselves in the fallow fields, meaning that mortality among the flocks was allowed to act naturally, as were the scavengers that cleaned up the remains. The Sheep were driven back into towns during all but the mildest winters, leaving the Griffons to seek food elsewhere; still, the great birds managed to hang on in Swabia until well into the 18th century, when persecution forced them back south again.<sup>[226]</sup>

There were few such success stories to be found afterwards, and by the late 19th century, Europe's vultures were in serious trouble: extinct or nearly so outside of the Old European strongholds and declining from hunting, egg thievery, and poisoning even there. By the 1920s, zoologists could plausibly assure their readers that the Lammergeier was "probably extinct in Europe."<sup>[227]</sup> It wasn't, but there was little evidence for that species' continued existence outside of the remotest mountains. In the winter of 1907, the British hunter and naturalist R. B. Lodge undertook an ultimately unsuccessful journey to the Balkans "in the hope of being perhaps able to find a nesting-





place of the rare Lammergeier . . . which is now on the verge of extinction in Europe." Lodge wrote that "its nesting-places in the most remote mountain ranges are extremely difficult to reach before the young are hatched on account of the deep snow which prevails in the early parts of the year," and thought that were it not for that quirk of behavior the Lammergeier "would in all probability have been extinct before now, for the habit of laying out of strychnined carcasses for wolves . . . has resulted in the destruction of great numbers of these and other raptorial birds, and they are in consequence of extreme rarity." He knew of no more than a few pairs that might "still perhaps linger in the most inaccessible of the Spanish sierras, and . . . a pair or two in the Carpathians, and in Bosnia and Greece."<sup>[228]</sup> This was the sum total of a bird whose howling wings had once echoed across peaks and valleys from Seville to Minsk, and from Sicily to Germany. The outlook for the other vultures, though much less noticed at the time, was scarcely any better. By 1960, the Egyptian Vulture, the most adaptable of all Europe's vultures to human activities, was largely unknown in Europe outside of Spain, the Cévennes Mountains, and the wildest parts of Bulgaria and Romania.<sup>[229]</sup> The Eurasian Griffons of France were in steep decline by 1890, and extinct entirely except for a few scattered pairs in the Pyrenees Mountains by 1940.<sup>[230]</sup> Monk Vultures, dependent upon forests for nesting sites and easily disturbed by humans, were even worse off. Willoughby Verner mentioned that Monk Vultures in Spain preferred to nest in the same tall, difficult-to-climb trees with few low-lying branches that were favored for ship-building timber - "And so, year by year, the older and more favourite nesting places . . . are destroyed and the birds are forced to seek fresh sites in other districts."<sup>[231]</sup>

A map showing the distribution of Europe's vultures in the time of the ancient Greeks would probably show all four species distributed across the continent, with large populations almost everywhere south of Belgium. A similar map drawn in the mid-20<sup>th</sup> century, when Europe's vultures were at their lowest ebb, would show large populations only in Spain and in the southeast (primarily mainland Greece), with practically nothing in between. Even today, after substantial and successful efforts have been made to reintroduce vultures to Central Europe, these two areas are the undoubted strongholds of the birds; Spain in particular, which is currently home to about 95% of all of Europe's vultures.<sup>[232]</sup> Such abundance can be partly ascribed to geography; thus was Crown Prince Rudolf led to declare that, "Spain is the land of the Vulture, and its many lofty Sierras offer the very nesting-places that these great raptorial birds love, while the desert-like plains lying between the mountains serve them as splendid hunting-grounds."<sup>[233]</sup> It can also be attributed to the regular and frequent movement of Spanish livestock from low-lying winter pastures to higher summer pastures, with predictable mortality among the animals along the way;<sup>[234]</sup> and perhaps even to the Spanish tradition of bullfighting. Many travelers to Spain from elsewhere in Europe were convinced that its vultures were afforded regular feasts by the carcasses of Horses and bulls that were killed in the bullrings, then thrown over the nearest cliff.<sup>[235]</sup> Less obviously but no less importantly, Spain was one of the last parts of Western Europe to be overrun by Indo-European culture. This regional delay of the cultural influx that would eventually lead to ancient Greece, Rome, and the assorted aristocracies of medieval Europe would ultimately equate to a stay of extinction for Europe's large vultures.

In 1867, the English baron Lord Thomas Lilford visited a Spanish village situated at the entrance of a gorge west of Pamplona. A pair of Lammergeiers annually nested on one of the crags overlooking the village. Such an arrangement would be not just intolerable, but unthinkable, in Middle Europe; the apoplexy of fear and hate aroused by the birds' reputation as killers of people and livestock would assuredly bring a quick end to their tenancy, if not to their lives. But when Lilford spoke to the people of the village below the Lammergeiers' eyrie, they "assured us that the birds had bred there from time immemorial, that they did no harm, *i.e.* never carried off lambs, kids, or fowls,



and only fed on dead beasts with the Vultures."<sup>[236]</sup> Places where the prevailing attitudes towards vultures were laced with positivism, or at least benign indifference, offered them their only refuge from the thick European atmosphere of disdain and persecution. There can be little doubt that the Lammergeier, for one, would now be entirely extinct in Europe were it not for Spain and Greece. Although the British ornithologist H. Kirke Swann took a typically dim view of vultures, feeling that they were "to be recommended neither for their habits nor for their personal appearance,"<sup>[237]</sup> he still averred in the early 20<sup>th</sup> century that they and the other birds of prey found in Spain could be counted as "one of the glories" of that nation:

It is a glory compounded of many elements, the chief one being the lack of many things which the progressive ideas of modern civilization deem essential, but which are here non-essential. Other elements are the dust and the arid wastes, the wild untilled spaces, the unshaven and carelessly good-natured people, the primitive herds of goats upon the mountains and cattle in the plains, and above all the blue vault made ambient by the sun of Andalusia and filled with the great soaring vultures, eagles, kites and other large birds which a modern civilization has not destroyed. It is a glory which once seen can never be forgotten.<sup>[238]</sup>

Attitudes towards the birds in the more "progressive" parts of Europe can be summed up in the description of the magnificent Monk Vulture in the enormous *New Natural History* series of books, published in Britain at the end of the 19<sup>th</sup> century: "Like its kin, the black vulture is a bird of heavy and ungraceful form and a generally repulsive appearance; its habits, when not engaged in feeding, being sluggish and inert, and its disposition cowardly."<sup>[239]</sup> This statement is not notable because of its tone; quite the contrary. With very minor variations, it had been anteceded and postdated by countless others, the same poison-tipped words wielded against the vultures over and over again by scribes drunk on their own willful ignorance.<sup>[240]</sup> It's notable only because the book in which it appeared was edited and partially written by Richard Lydekker. If you've forgotten his initial appearance [in Chapter 2](#), Richard Lydekker was the same naturalist who discovered the fossils of Europe's grandest-ever bird of prey, the Maltese Vulture, and published the first description of that bird. That the man who had the honor of unearthing one of the most spectacular animals that ever lived could turn around and publish such things about that animal's living relations a mere few years afterwards suggests that there was more than just simple dislike at work here. Lydekker, or whichever of his partners in libel wrote the passage upon the Monk Vulture (its author is unidentified), saw no need to print any observations or anecdotes to support the hateful accusations that it contained. They were "accepted wisdom," after all, and he was assuredly speaking for most of educated Europe. He apparently saw no redeeming qualities whatsoever in vultures, sneering that they were of value only "in tropical countries, where the care bestowed upon sanitary matters appears to vary inversely with the rise of the temperature."<sup>[241]</sup> The palpable smugness that sanitary and civilized Europe neither needed nor wanted any vultures is there for all to see.

Another Dick of a European naturalist, whose ornithological writing has become much better known than Lydekker's, espoused a very similar attitude towards the carrion birds. Richard Meinertzhagen was born in London in 1878, and, upon coming of age, he embarked upon a military career with the British Army which took him from India to Kenya to South Africa to India again, before he ended up in East Africa at the eve of World War I. (Note that all of these locales, aside from being British possessions with oft-rebellious locals at the time, also boasted spectacular bird life.) He left the bekhakied ranks of the army in 1925 and entered the befuddled ranks of professional

ornithology, where he compiled a body of work that, for a time, set a standard for meticulous observation of wild birds.<sup>[242]</sup>

Meinertzhagen's writings on vultures were penned with distaste typical of his culture and his time; though if anything, he seems to have despised the birds even more than most other Europeans. He derided the Egyptian Vulture as "one of the foulest scavengers," and a "great coward, avoiding a rat if it shows the slightest sign of life"<sup>[243]</sup> (which is untrue; those vultures have been known to prey on live rats). He described vultures as "communal gluttons" whose feeding habits presented "a revolting sight of selfish greed" when compared with carrion-eating eagles who were "little gentlemen . . . [that] never indulge in communal feeding, though vulturine in habit" (also untrue). For someone who had observed vultures so much in the wild, his comments about the birds are often ludicrously inaccurate, as when he claimed that "grievous injuries are many" when vultures congregated around carcasses,<sup>[244]</sup> in fact, it is rare for vultures to inflict any injuries more serious than small cuts or bruises upon each other while fighting over carrion.<sup>[245]</sup> On the whole, it's clear that he allowed his native prejudices to overcome any pretense of objectivity when observing and describing vultures, though he was merely following the party line in surrendering to this bigotry. In that sense, he did Albert the Great, Frederick II, and Richard Lydekker proud; he kept the torch of disdain for the carrion birds burning brightly. But when Meinertzhagen cast his eyes and pen upon one vulture in particular, the flame started to flicker.



But when Meinertzhagen cast his eyes and pen upon one vulture in particular, the flame started to flicker.

Certain wild animals have come to be closely identified with the researchers who spent a great deal of time and effort studying them in the field. These intimate relationships of studiers and studied are usually common knowledge only among professionals in the life sciences, unless the studier is also an effective popularizer whose study subjects happen to be big and charismatic. When that's the case, the relationship can become nearly synonymous to the public-at-large; for many people, it's impossible to think of Chimpanzees without also thinking of Jane Goodall, of Lions or Giant Pandas without thinking of George Schaller, or of most any marine animal without also thinking of the late, great Jacques Cousteau. In terms of the useful science and concrete facts produced by his studies, Meinertzhagen was sadly lacking compared to these titans of biology; and the relationship that he forged is little known outside of the insular world of ornithology. But it can safely be said that no field biologist has ever had a more complicated relationship with their subjects than Richard Meinertzhagen (left) had with the Lammergeier.

He considered it "the most impressive, regal, sinister, and portentous of birds." He seems to have harbored a very intense love-hate relationship for the Lammergeier, as evinced by the following passage, which appears as an introduction to the species in his book *Pirates and Predators*:

The lammergeier combines extreme grace in flight, an almost regal appearance in his natural surroundings with a cowardice out of all proportion to his size and magnificence. He is a bird of unashamed cowardice . . . incapable of defending himself against creatures half his own size and frightened at the wink of an eyelid. And yet this bird of despicable character is one of the finest exponents of flight and aerial grace in the kingdom of birds.<sup>[246]</sup>

Elsewhere (and perhaps in a more reasonable mood), he recounted that:

My many experiences with it have certainly given me more pleasure, more fear, more presentiment, and more searching of my heart than my contact with any other creature, man included. No bird has caused me more discomfort, more anger, or given me such spiritual uplift and admiration for it as the lammergeier.”<sup>[247]</sup>

Meinertzhagen first became acquainted with Lammergeiers in the Himalayas, where he often watched the great birds soaring in the mountain updrafts, leading him to hope “for a more intimate association with such magnificent creatures.” Once attained, however, that association proved to be somewhat disappointing. In 1913 he was transferred to a British Army outpost in Quetta, near the present-day border of Pakistan and Afghanistan. Lammergeiers were quite common there, but Meinertzhagen felt that the birds’ habit of scavenging for scraps and garbage around the barracks was “demeaning [to] their grandeur.” He hoped to experience a more rapturous contact with the species in the rugged mountains surrounding Quetta; in the event, he experienced much more than anyone would dare ask for.

Accompanying his fellow officers on a military exercise in the mountains near Quetta, Meinertzhagen eventually was separated from his party, and found himself in an unfamiliar area with very rugged terrain. While attempting to find his way back along a precipice, he was confronted by a scree, a field of loose rocks, about 20 yards (19 m) wide. Though he attempted to cross it, he

had not advanced more than a few steps when the scree commenced to crawl and then to move rapidly downhill, throwing me off balance. I found myself being carried rapidly downward amid the roar of rocks and approaching a vertical drop of several hundred feet. But an old gnarled juniper tree had survived on the scree, and on passing it I clutched desperately at the old stump, breathless, fully aware of my danger and with the cascade of rocks and boulders roaring past me.

The mountain harbored other perils besides the rocks. A Lammergeier had witnessed the entire series of events; and, according to Meinertzhagen, “Any animal in distress on a mountain slope is the lammergeier’s opportunity. His trick is to strike his victim with his wings and accelerate his destruction by throwing him off balance. If he can hasten the end, he does so.”

Meinertzhagen’s description of what followed is a passage of some controversy in the world of ornithology. Depending on who you ask, it is either a rare and accurate first-hand account of a predatory attack on a human by a bird of prey, or a grossly misinterpreted incident that involved nothing more sinister than a Lammergeier curious enough at the spectacle of a human trekking in its mountains to linger overhead for a few minutes. In any case, according to Meinertzhagen:

The great bird swerved toward me, passing so close that I could see his sinister scarlet eyes and the look of greedy anticipation on his satanic bearded face. Three times he passed me, the last time so close that I could have touched his wing tip with a stick; but I was protected by that friendly juniper, and by then the scree had ceased roaring in its downward rush. It took me some moments to recover my composure, after which I was able to make my way with great caution to solid ground. But that evil disappointed bird kept his eyes on me, hoping for my bones, until I left the mountain.

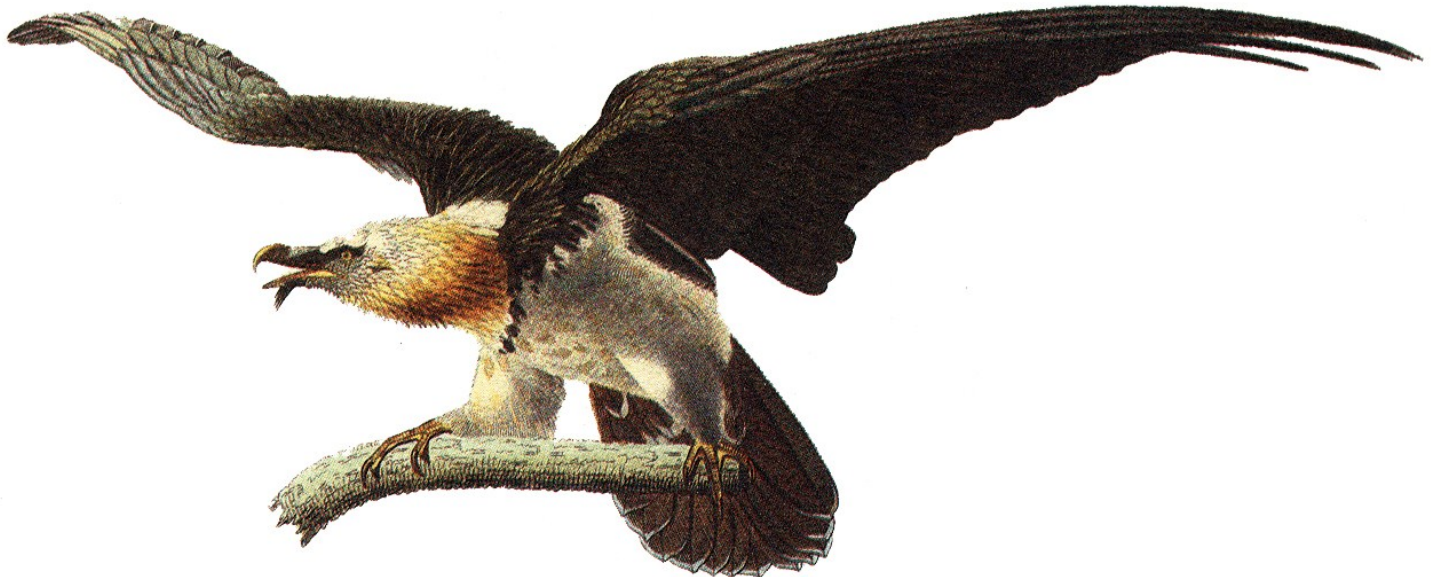
Most people would be more than a little unnerved by such an experience; but Meinertzhagen was merely “elated by my victory and intensely interested in the fact that the bearded vulture should have the sense to recognize a prospective meal in one of his only enemies.”<sup>[248]</sup>



On July 26, 1914, Meinertzhagen was again stationed in the high mountains of Asia, this time in a more remote part of Baluchistan (present-day western Pakistan), and again experienced a close encounter with a Lammergeier. Although tensions between the great powers of Europe were then boiling over - two days later, an Austrian nobleman by the name of Franz Ferdinand would be assassinated in Serbia, plunging Europe into the most terrible war it had ever known and sounding the death knell upon its era of unchallenged global dominance - Meinertzhagen thought at the time that "such a catastrophe seemed unreal and remote." As the sun set that day, he walked out from the cave in which he had pitched camp, attempting to visualize for himself whether a war would occur, and if so, what it would be like. He was "soon convinced of the certainty of war and its bloody trail of misery and destruction" - for, as he wrote in his diary that night:

The finest view I ever had of a lammergeier occurred today. I came on him but a few feet away silhouetted against a gold-red sunset, magnificent against a horizon stretching for miles and miles into golden infinity. He was quite unconscious of my presence as he gazed into the sun. He sat on a rocky pinnacle, wings slightly outstretched and head turned upwards toward heaven. Was this the phoenix of the ancients, Pliny's bird of brilliant golden plumage around the neck, the throat adorned with a crest and the head with a tuft of feathers? Was this lammergeier conscious of his sacred relationship with the sun? The phoenix of the ancients presaged peace everywhere in the land. What I saw this evening seemed to foretell war, a long, bloody war.

Though it involved no personal danger, this encounter seems to have unnerved the hardened war veteran and outdoorsman far more than had the previous scrape with an apparently malicious vulture on a mountainside. And yet, as Meinertzhagen slowly trudged back to his cold cave, "depressed and alarmed at the uncertainty of the future," he couldn't help but think that, "It was the finest, most beautiful and yet most terrible, the most romantic view of any bird I have seen at any time anywhere."<sup>[249]</sup> For all-too-brief a moment, a man who both epitomized and contributed to the sweeping European loathing of all vultures found that the conflicting feelings of melancholy and admiration, of foreboding and beauty, that were aroused by the birds were not irreconcilable, and that something more could be made of them than mere willful ignorance and blank disdain. Would that the rest of his society could have made the same discovery.



# Chapter 8

## Lookit All Them Buzzards!: Vultures In the post-Columbian Americas

The condor, where the Andes tower,  
Spreads his broad wing of pride and power  
And many a storm defies . . .  
-Felicia Doro Hemans, *The Birds*

. . . and then, Jose Manuel Miguel Xavier Gonzales, I further command that such officer or officers return quickly from your dangling corpse, that vultures may descend from the heavens upon your filthy body until nothing shall remain . . .

-The Honorable Judge Roy Bean, *United States of America v. Gonzales* (1881), Taos, Territory of New Mexico

The good and only moderately flamboyant yacht *Gay-Ted* was favored with calm weather and smooth seas as it crossed Florida Bay on November 2, 1968. A low-lying fog hung over the bay as the vessel sailed from the island of Marathon, in the Florida Keys, to Cape Sable on the southwestern tip of mainland Florida. The fog cut visibility to about half a mile (0.8 km), but the *Gay-Ted* steamed confidently at 19 knots, with no visible ship traffic or other obstructions to hinder its cruise. The nearest land was more than 8 miles (12.9 km) away.

Suddenly, the crew of the yacht saw a number of black shapes emerge from the fog and veer towards their vessel; not other ships, but birds, which were soon identified by the astonished passengers as Turkey Vultures. More than fifty of the Vultures swooped upon the *Gay-Ted*, attempting to alight upon it; but the yacht's speed was too great, and they overshot it - all but one of them. That solitary Vulture barely managed to thump down on the roof of the aft deckhouse, but it soon fell off and drowned in the yacht's wake. The *Gay-Ted's* crew slowed their ship down to about 10 knots, as the whole flock of Vultures wheeled about and again tried to perch on the yacht. This time they succeeded, and 55 of the birds were counted as they dropped onto the ship from bow to stern.

No person aboard the *Gay-Ted* had ever heard of a yacht covered with vultures, let alone sailed upon such a vessel; and the birds induced a great deal of apprehension in the passengers, some of whom no doubt thought that the birds were an unmistakable portent of impending doom. Intrigued though the humans were by the Vultures, this interest was not reciprocated; the birds took no notice whatsoever of the people aboard the *Gay-Ted*, and didn't even react when the passengers approached to touch them. Exhausted from their flight, many of the Vultures regurgitated recent meals onto the deck of the yacht, but none made any move to take back to the air.

The *Gay-Ted's* crew sped the vessel back up to 19 knots, and after about 20 minutes the fog began to thin out, revealing the coastline of Cape Sable some 3 miles (4.8 km) away. This sight caused some consternation among the Vultures (who of course could see it with much greater clarity), and about half of them took off from their maritime perch and flapped heavily towards the land. Many of them managed to reach Cape Sable safely, but a dozen of the birds gave up after flying a quarter of a mile (0.4 km), and turned back towards the yacht; three of these Vultures, too exhausted to go on, dropped into the water and drowned. The other nine again alighted on the yacht.

As the *Gay-Ted* neared Cape Sable, the crew changed the vessel's course, veering eastward towards Flamingo, the southernmost portion of the Everglades swamp. When the yacht had closed to within a mile (1.6 km) of Flamingo, the remaining Turkey Vultures flapped into the air, struggling to reach the shoreline; all of these birds were seen to reach land safely. The crew and passengers thought that they were at last rid of their strange and not entirely welcome stowaways; but, after docking at Flamingo, one last Vulture was discovered hiding under the seat of the yacht's dinghy. It soon flew off as well, leaving all of those aboard the *Gay-Ted* with a story that, in its sheer strangeness and unexpectedness, could easily compete with anything that was ever reported from the Bermuda Triangle. They later discussed what had happened with many of the professional captains and guide-boat operators who plied their trade in and around southern Florida; not one of the seasoned seamen could recall a similar experience. The "ship of death," as reported by William Mote to the ornithological journal *Auk*, seems to have been an entirely unique occurrence.<sup>[1]</sup>

This anecdote doesn't really have much of anything to do with the rest of this chapter, but I felt that it was just too wonderfully bizarre to leave out of *Carrion Dreams*. But then, perhaps it does have a certain tangential relevance; for, just as the *Gay-Ted* carried vultures lost at sea back to the land of the Americas, so too did the *Niña* ("little girl"), the *Pinta* ("painted one," a euphemism for a prostitute), and the *Santa Maria* (nicknamed *Marigalante*, "Dirty Mary"<sup>[2]</sup>), their crews far less certain of their destination, carry the opinions and prejudices of Europe to the people and vultures of the Americas in the year 1492. This meeting of Old World with New, engineered by Christopher Columbus and funded by the Spanish government, would irrevocably alter the entire planet in ways that no one could have foreseen; not that anyone involved made much effort to plan for the effects of Columbus's expedition.





The Spanish authorities didn't seem to be particularly interested in the flora and fauna of the lands that Columbus was supposed to find, considering that they intended to get rich off of them. Neither Columbus nor any of the men on his expeditions are known to have had any training as naturalists, nor did any of them make any sketches or paintings of the plants and animals that were seen by European eyes for the first time. Apparently not a single one of Spain's expeditions during the age of exploration even bothered to include an artist to depict and catalogue the findings.<sup>[3]</sup> Natural history was not particularly in vogue as a science in the late 15th and early 16th centuries; and even if it had been, the explorers had more paramount concerns (survival, for example) than cataloguing the fauna and flora of this new world. By the dawn of the 17th century, viable European colonies had been established throughout the Americas, and an increasing number of colonists were beginning to take note of the creatures that greeted their eyes and fell to their guns. Still, there's no real certainty about the when's and wherefore's of the very first European sightings of most of the New World vultures.

Safely ensconced on the far western side of North America, the California Condor was probably the last of the New World vultures to become known to Europeans; yet, thanks to the intensive studies undertaken by Harry Harris and published in the ornithological journal *Auk*, more is known about its early sightings than any other. The earliest reported sighting of the species is found in the diary of a Spanish friar, Antonio de la Ascension, who was a passenger aboard the ship *Santo Tomas*, one of three that had been sent by the Viceroy of New Spain to explore the Californian coast. The tiny fleet reached the Bay of Monterey in central California on December 16, 1602, where Antonio noted, "There are some . . . birds of the shape of turkeys, the largest I saw on this voyage. From the point of one wing to that of the other it was found to measure seventeen spans."<sup>[4]</sup> (The "it" which was measured may have been a Condor killed by the crew of the *Santo Tomas*, although Antonio doesn't say as much.)<sup>[5]</sup>

Believe it or not, that seems to have been the only written European record of the California Condor for 167 years. The next account was found in the journals of a land expedition which set out from New Spain (what is now Mexico) in 1769. Don Pedro Fages, the second in command, mentioned that, "Eagles are seen which measure fifteen spans from tip to tip, the shaft





of their feathers being as large as the largest finger of the hand.” Miguel Costanso, the expedition’s engineer, went into greater detail about what the expedition found when it camped close to an abandoned Amerindian village near the present-day location of Watsonville, California, on October 8: “Here we saw a bird that the natives had killed and stuffed with grass; it appeared to be a royal eagle; it was eleven palms from tip to tip of its wings. On account of this find we called the river the Rio del Pajaro [River of the Bird].” The small wingspan (less than seven and a half feet (2.3 m)) is explained by the Condor being a juvenile, which was raised in captivity and then sacrificed by the inhabitants of the village before it fledged.<sup>[6]</sup>

Although the Condors of North America were then seemingly forgotten for another few decades, until the Lewis and Clark Expedition, their presence became part and parcel of what would become the land of California; indeed, if not for the Condors, California as we know it would probably not exist. The word *Califerne* long predates the European discovery of the New World, appearing at least as early as the 12th century; and according to A. J. Carnoy, an authority on the mythology of Iran, the word is derived from the Persian term *Kar-i-farn*, “Mountain of paradise.” It referred to a famous peak upon which were alleged to dwell enormous chimerical birds, half-lion and half-raptor; griffins, as far as Europeans were concerned. *California* was a label first slapped upon the New World in 1541, when it was applied to the southern tip of the Baja Peninsula by Francisco de Bolanõs. The name stuck, and later came to be applied to the area that is now the American state of California (“Alta California”) as well as the peninsula. No one knows for certain why de Bolanõs chose that name and only that name for the area, but it was probably because he was inspired to identify it with the mythical Persian peak by sightings of strange, gigantic birds: California Condors, which at the time inhabited Baja in considerable numbers. Other than the presence of Condors, there’s scarcely any other way to explain why later visitors to California insisted that in the area “griffins are found, and this is not a fable but the truth.”<sup>[7]</sup>

One might wonder why the Europeans who saw these birds, and who were presumably at least casually acquainted with the vultures of their home countries in the Old World, didn’t immediately identify them as vultures. Certainly, few persons today who are even vaguely familiar with vultures show much reluctance to identify any bald, hook-billed bird as a “vulture.” But the fact is that, at least in the material that survives, the early explorers christened the Americas’ vultures after almost anything *but* the Old World vultures: the New World birds were dubbed *griffins*, *turkeys* (themselves recent but very popular imports to Europe from the Americas), *eagles*, or even *chickens*. The trait of the New World vultures that most immediately identifies them to modern eyes, their bald heads, was actually quite unfamiliar to Europeans; none of Europe’s vultures are actually bald, although all but the Lammergeier have some bare skin on their heads and necks. On the other hand, all of the American vultures are entirely bald, just like turkeys. The comparison persists even today; in the Falkland Islands, for example, Turkey Vultures are often simply called *Turkeys*,<sup>[8]</sup> which was also common usage into the 20th century in some parts of the United States.

The American birds seem not to have been thought of as “vultures” until the 18th century, when some European ornithologists attempted to establish biological relationships between the New World birds and the vultures with which they had long been acquainted.<sup>[9]</sup> These efforts were immeasurably helped by the already-existing division in European science of “noble” and “ignoble” birds of prey (the origins of which were explained [in the last chapter](#)), under which the New World vultures were clearly “ignoble,” like their Old World counterparts. It then remained the custom to retain both New and Old World vultures in one familial group, and all of the other diurnal birds of prey in another; despite the multitude of differences between the two vulture groups, and of



similarities between the Old World vultures and the "noble" raptors. This classification remained the norm until the 1860s, when intensive anatomical examination demonstrated that under the skin, the New World Vultures could hardly be any more different from their Old World counterparts.<sup>[10]</sup> And as late as the early 20th century, a distinguished American ornithologist could suggest a genuine relationship between turkeys and vultures, on the grounds that the New World vultures "represent the gallinaceous [game bird-like] type of structure; our species of *Cathartes* [the Turkey Vulture], for instance, bears a curious superficial resemblance to a turkey."<sup>[11]</sup>

The American vultures bore one further resemblance to the domesticated darlings of poulterers everywhere: most of them were exceedingly tame. Tame vultures would have been a novel experience for Europeans, whose native vultures were almost without exception shy, wary, and quick to take flight from humans, thanks to centuries of persecution. This may explain why the first known published description of the [Black Vulture](#) describes the birds as

fierce chickens, big as turkeys, black in the head and part of the neck with some dark gray, although not as dark as the rest of them, and the less dark areas are not the plumage, but the hide. Their meat is bad and tastes awful, and [they] are very voracious and eat much filth, dead Indians, and animals. . . . After they are killed, they lose their odor and are good for nothing, except the feathers are used for darts and arrows. . . . They are very inopportune and like to be in or near town to eat filth.<sup>[12]</sup> [Translated by Rodolfo Salas-Auvert and A. Vilorio]

This interesting report was written by Gonzalo Fernández de Oviedo y Valdés, a government-appointed chronologist of Spanish exploration, and published in the *Summary of the Natural History of the Indies* in 1526. Included as part of a chapter entitled "Fragrant Chickens," a strong argument could be made that it was the most inauspicious introduction to a previously unknown species of bird ever written.

Having nothing else to compare them with, and possibly also in an effort to assuage homesickness, European explorers and settlers naturally named many of the animals and plants that they encountered after what seemed to be the closest counterparts of the Old World. The New World vultures were not alone among the birds of the Americas in being named after Old World analogues to which they were quite unrelated. The birds that North Americans call "blackbirds" are only superficially similar to the blackbirds of Europe, and could no more interbreed with them than New World orioles could with Old World orioles. Contrariwise, some birds that *do* have close relatives, even of the same species, in Europe were given very different names from the Old World birds; until a few decades ago, Peregrine Falcons were widely known as "Duck Hawks" in American English. And then there are the buteos, which bring us to the whole "vulture/buzzard" can of linguistic worms.

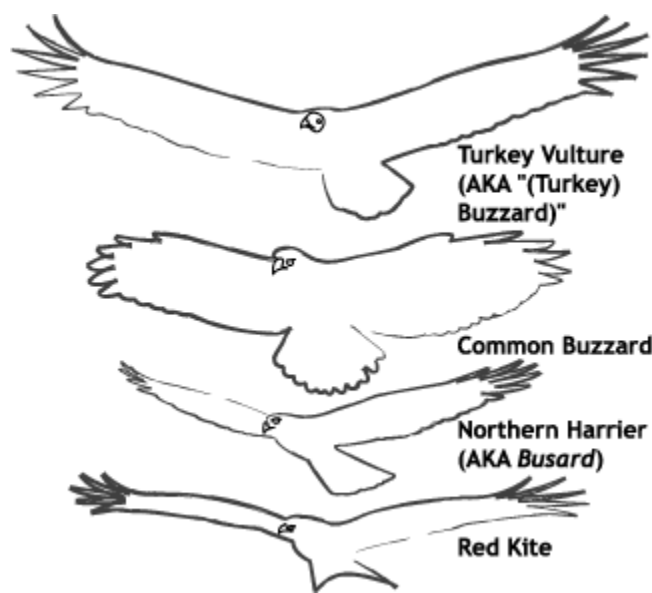
Here's the simple part: in British English, *buzzard* in the literal sense was and remains a fairly specific word reserved for the long-winged hawks of the genus *Buteo* (for example, the species *Buteo buteo* is known as the Common Buzzard); and until the influence of American English began to seep in, this word was never, under any circumstances, applied to vultures. Aside from being large, hook-billed birds with a proclivity for soaring flight, the American vultures have virtually nothing in common with buzzards; the buzzards have fully feathered heads, are not gregarious, build their own nests, get most of their food from small live prey and not carrion, etc., etc. Furthermore, there are numerous buteos in the Americas (such as *Buteo jamaicensis*, North America's ubiquitous Red-tailed Hawk) that are very similar in all respects to the Old World buzzards, and that should have rightfully been called *buzzards*.

The rote explanation for this misidentification is that early English colonists, upon seeing the soaring vultures of eastern North America, named them after the soaring birds they were most familiar with: buzzards. But there are a number of serious flaws with this reasoning, not the least of which is that as far as large soaring birds were concerned, the average 17th-century Englishperson was more familiar with the then-much more common Red Kites than with buzzards. Just how *unfamiliar* real buzzards were to these people is evinced by the fact that they quickly took to calling the American buzzards *hawks*, whereas anyone possessing even a passing familiarity with the British Common Buzzard would immediately recognize North America's Red-tailed "Hawk" as a virtual carbon copy of that bird. Why, then, do Americans speak of *Turkey Buzzards*, and not, say, *Turkey Kites*?

Some early English colonists took to calling the Turkey Vulture a "bustard"; for instance, a 17<sup>th</sup> century letter from a New English parson mentions "a great sort of ravenous Bird that feeds upon Carrion as big very nigh as an Eagle, which they call a Turkey Bustard."<sup>[13]</sup> Bustards are large, omnivorous, predominantly ground-dwelling birds native to the Old World, including Britain. They are considered good eating, but otherwise they bear little resemblance to turkeys; nevertheless, *bustard* seems to have become a synonym for *turkey* during the colonial era. Calling a bird a "Turkey Bustard" was thus an exercise in redundancy, akin to "Cougar Puma" or "Donkey Ass." Another contributor to the handle of *Turkey Buzzard* was the French word *busard*. This refers not to *buteos*, but to yet another variety of raptor, the harriers or marsh hawks. Harriers aren't any more noticeably vulture-like than buzzards, except in their patterns of flight. Harriers commonly fly low above the ground, coursing back and forth and tilting in the wind, with their long wings held in a shallow-V shaped dihedral. Replace "Harriers" with "Turkey Vultures" in the preceding sentence, and I've just described the flight patterns of the only vultures that inhabited northeastern North America when the first European colonists arrived. There is at least one record, from 1614, of one of those Vultures being called a "Turkie Bussard" by English colonists.<sup>[14]</sup>

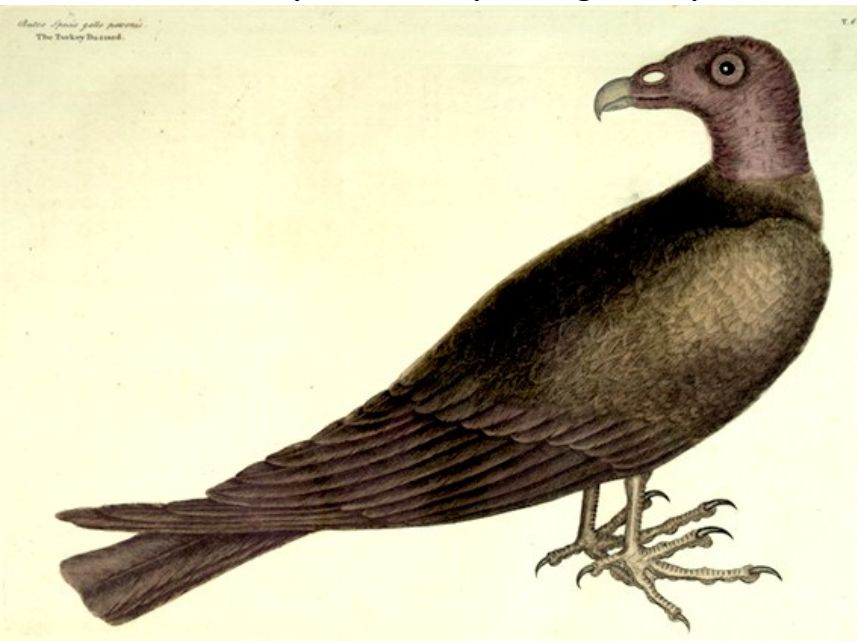
In short, the moniker of *Turkey Buzzard* seems to have conflated the names of four different birds: turkeys, buzzards, harriers (*busards*), and bustards (turkeys again) – but not vultures, curiously enough. The most likely sequence of events in developing this patchwork name was as follows: Newly arrived English and French-speakers in North America saw Turkey Vultures, which the former identified as *turkeys* or *bustards* (or both), and the latter identified as *busards*. This catchy-yet-hideously-incorrect usage was copied by their descendents and later immigrants, who corrupted *bustard* into *buzzard* and likewise Anglicized *busard* into *buzzard*. Before long, the American buzzards were "hawks," and the American birds that flew like harriers and looked like turkeys or bustards (or turkey bustards) were either vultures or, more frequently, "buzzards."

The establishment of *buzzard* as a name for the Turkey Vulture was greatly eased by the derogatory connotations that the word still carried in Britain during the 17th and early 18th centuries. The English colonists in the New World, with no particular liking and little practical use for the vultures, would naturally refer to them with a word that was thought of as mildly insulting. While we're on the subject, it should be pointed out that strictly incorrect usage of *buzzard* isn't restricted to



the Americas, despite several snooty remarks to the contrary by European ornithologists. The word is also misapplied to some birds of prey in Australia that aren't really buzzards; and some English speakers in South Africa have taken to calling ground hornbills *Turkey Buzzards*.<sup>[15]</sup> Their reasoning is quite similar to that of Americans who apply the name to vultures: the hornbills have bare, reddish-colored heads and necks, like turkeys, and are considered to be of no particular esteem or value, like buzzards. And once again the lack of physical similarities between the real buzzards and the so-called “buzzards” are utterly irrelevant to the application of the word, because *buzzard* is now the default English term of derision for any large bird. It must be said that Americans made far richer use of the word than the British ever did; as evidence, one need only point out the many *Buzzard Points*, *Buzzard Swamps*, *Buzzard's Roosts*, and *Buzzard Lanes* found throughout the United States, or note that *buzzard* has been applied as a descriptor to everything from plows to ducks to the upper-level seats of theaters (which are also *buzzard roosts*).<sup>[16]</sup>

The Turkey Vulture's unfortunate handle of *buzzard* was certainly well established by 1709, when the first English-language book intended to detail the natural history of the New World was published. John Lawson's *A New Voyage to Carolina* mentioned among Carolina's birds the “turkey-buzzard . . . a small vulture which lives on any dead carcasses. They are about the bigness of the fishing-hawk [Osprey], and have a nasty smell with them. They are of the kites color, and are reported to be an enemy to snakes by killing all they meet withal of that kind.”<sup>[17]</sup> Much more was written about



the Turkey Vulture in Mark Catesby's *The Natural History of Carolina, Florida, and the Bahama Islands*, published from 1731-43 and the definitive account of North American natural history until the writings of William Bartram and John James Audubon appeared many decades later. He too, mentioned the only vulture of the colonies, the “Turkey Buzzard,” (left) with its “head and part of the neck red, bald and fleshy, like that of a turkey, beset thinly with black hairs; the bill . . . hooked like that of a hawk. . . . The nostrils are remarkably large and open . . . the feathers of the whole body have a mixture of brown purple and green; the legs short . . . their claws black, and not so hooked as those

of hawks.” Catesby mentioned that the Vultures were “generally thought not to prey on anything living, though I have known them to kill lambs; and snakes are their favorite food.” But most of their diet consisted of carrion, “in search after which they are always soaring in the air. They continue for a long time on the wing, and with an easy, swimming motion mount and fall, without any visible moving of their wings.”<sup>[18]</sup>

It didn't take the early English colonists long to develop a distinctive folklore about the Turkey Vulture, including even medicinal uses for its body parts. Less than a century after the *Mayflower* arrived on the East Coast, an article published in London in December 1693 contained a claim that among Virginians, “the Fat [of the Turkey Vulture] . . . dissolved into an Oil, is recommended mightily against old Aches and Sciatica Pains.”<sup>[19]</sup> Some 17<sup>th</sup>-century colonists also believed that the eggs of the Vulture were able to “restore decayed nature exceedingly.”<sup>[20]</sup> (I don't know what it means, either.)



Later, it was believed that wearing a vulture feather behind the ear could prevent rheumatism; and a whole crop of beliefs arose around the actions and position of a vulture in flight. European augury was imported to the Americas, and it seems that the Turkey Vulture was the most prominent messenger of the higher powers. In the southeastern US, it was said that, if one should see a lone vulture in flight, one should immediately make a wish; if the wish was made before the bird flapped its wings, it would come true. Some believers added that if the bird did flap its wings after the wish, it would come true; but if it continued to hold its wings motionless, then the wish was wasted. It was also said that if a vulture flew over a person's house, they would shortly receive a letter or hear good news; unless this overflight happened to take place at noon, in which case a member of the family would die at precisely 4:00 PM. And, perhaps most realistically, if a vulture's shadow was seen without seeing the bird itself, the arrival of an unexpected visitor was imminent.<sup>[21]</sup> The more practicable side of vulture folklore relied on the birds to predict weather patterns. It was believed that the Vultures returning from the south in springtime often brought with them *buzzard storms*, periods of unseasonably cold weather.<sup>[22]</sup> In parts of the southern US, a solitary Turkey Vulture seen flying at great height is still thought to be a sure sign of rain, as is a Turkey Vulture seen sitting on a fence or tree with its wings spread. Texans believe that several Turkey Vultures seen circling at a great height forewarn of the coming of a norther, the strong, frigid north wind that blows over the state during autumn and winter.<sup>[23]</sup>

Turkey Vultures are usually considered to be shy, wary birds around humans; but this behavioral trait has only recently become prominent, thanks largely to steady harassment and persecution of the species. Some of the Amerindian folktales recounted in [Chapter 6](#) suggest that these birds were more confiding in people during pre-Columbian times, and early European observers agreed. Mark Catesby commented that, "They are little apprehensive of danger, and will suffer a near approach, especially when eating."<sup>[24]</sup> An observation in John James Audubon's *Mississippi River Journals* suggests that early 19th century Black Vultures, known as "Carrion Crows," were *less* tame than Turkey Vultures, an exact reversal of their respective present-day mannerisms. Along the lower Ohio River Audubon saw "a flock of *Carrion Crows* . . . [that] where so excidingly shy that they would fly several hundred Yards Off - while the Turkey Buzzards that accompanied them would suffer us to walk under the trees on which they alighted."<sup>[25]</sup>

When Audubon saw them, those Black Vultures were probably at or near the northern limit of their range, although the species would later range well into the northeastern United States. They certainly weren't familiar in the northern states at the time of the American Revolution, when the naturalist William Bartram (who lived in Philadelphia) was traveling through the Carolinas, Georgia, and Florida. In those southerly regions he found two species of vulture that he thought were "not mentioned in history." One was a bird (left and below) he called the

coped vulture . . . by the inhabitants called the carrion crow. . . . His wings are not long and sharp pointed, but broad and round at their extremities, having a clumsy appearance; the tail is remarkably short, which he spreads like a little fan, when on the wing. They have a heavy laborious flight, flapping their wings, then sail a little and then flap their wings again, and so on as if



recovering themselves when falling. . . . The whole bird is of a sable or mourning colour; the head and neck down to the breast is bare of feathers, and the skin wrinkled; this unfeathered skin is of a deep livid purple, appearing black and thinly set with short black hair. He has a ruff or tippet of long soft feathers, like a collar, bearing on his breast, in which he can conceal his neck and head at pleasure.<sup>[26]</sup>

Bartram's account of his journey, *Travels Through North and South Carolina, Georgia, East and West Florida*, wasn't published until 1791, by which time the *Carrion Crow*, so-called because it was as black as a crow and it ate carrion, was already becoming well-known to urban Americans.

There was ample food to be found for vultures in pre-20th century American towns and cities. Domestic animals from Dogs to Hogs were allowed to run free, and die, in the streets. Urban livestock keeping was much more prevalent than it is today; in most cities, there was scarcely a family that didn't keep a few Pigs or Chickens. And without any efficient means of taking garbage out of the cities to dumps, it was allowed to pile up in the streets, to be dealt with at the leisure of whomever and whatever desired it. By the end of the 18th century, vultures were well on their way to becoming a familiar presence to Americans, in the cities as well as in the fields. Urban Black Vultures were by all accounts extremely common and conspicuous, and by the mid-19th century were found in almost every significant settlement from Virginia southwards. Turkey Vultures, still relatively bold in the presence of humans, were also out in force; and together the pair comprised the dedicated scavenging crew of urban America; as John James Audubon put it, the urban vultures comprised "a second set, differing widely in habits from those that reside constantly at a distance from these places."<sup>[27]</sup> In his words:

Charleston, Savannah, New Orleans, Natchez, and other cities, are amply provided with these birds, which may be seen flying or walking about the streets the whole day in groups. They also regularly attend the markets and shambles, to pick up the pieces of flesh thrown away by the butchers, and, when an Opportunity occurs, leap from one bench to another, for the purpose of helping themselves. Hundreds of them are usually found, at all hours of the day, about the slaughter-houses, which are their favourite resort.<sup>[28]</sup>

Audubon found these urban vultures rather lazy, with an appearance that "exhibits all the nonchalance belonging to the garrisoned half-paid soldier," as

nothing but extreme hunger will make them fly down from the roof of the kitchen into the yard, or follow the vehicles employed in cleaning the streets of disagreeable substances, except where (at Natchez for instance), the number of these expecting parasites is so great that all the refuse of the town, within their reach, is insufficient: they then are seen following the scavengers' cart, hopping, flying, and alighting all about it, amidst grunting hogs and snarling dogs, until the contents, having reached a place of destination outside the suburbs, are deposited, and swallowed by them.<sup>[29]</sup>



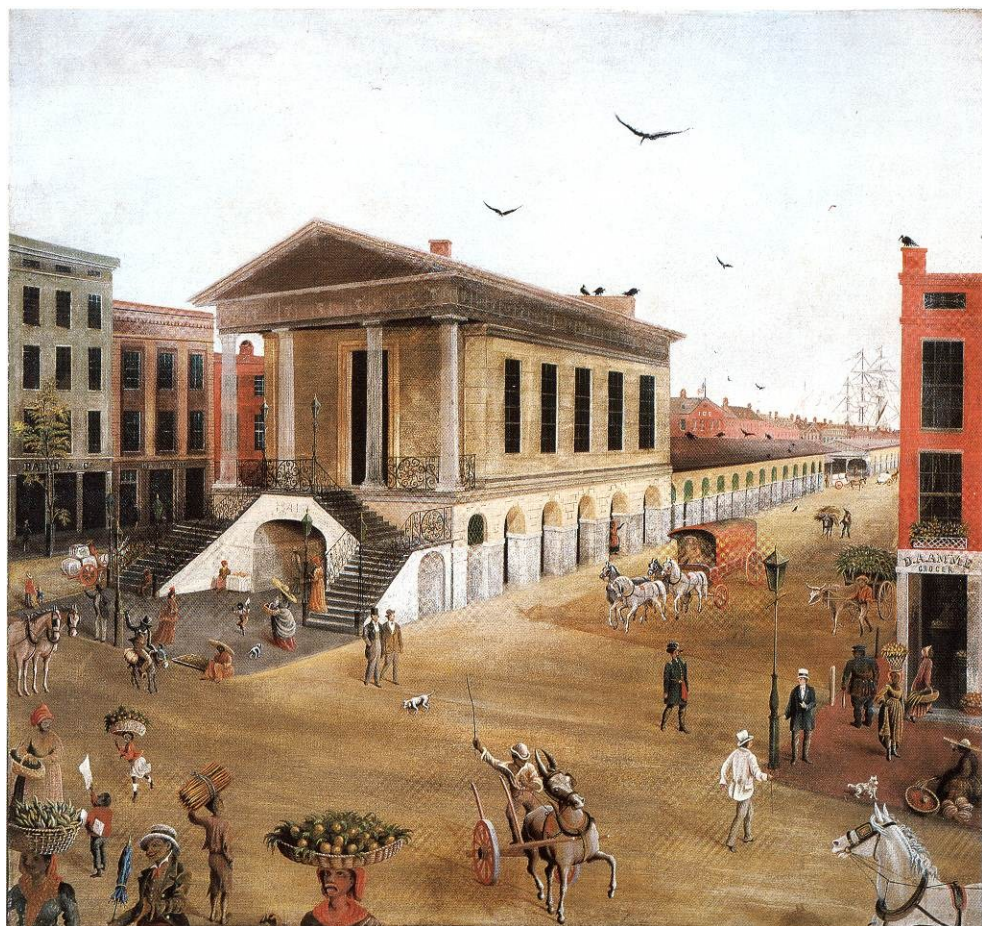


European travelers who visited the US in the 19th century noted that “in some of the southern towns and villages,” were found great numbers of Turkey Vultures, which “when not molested . . . may be seen perambulating the streets, or roosting on the housetops, with perfect unconcern of the passers-by.”<sup>[30]</sup>

Most cities and towns had thriving populations of vultures well into the post-Civil War era, but one burg rose above the rest to become all but synonymous with the birds. Charleston, South Carolina was the closest thing the Americas have ever seen to a city built for vultures. Although its 19th-century population never much exceeded 70,000 people, in its day the low-lying coastal city had one of the largest, and certainly the most famous, vulture populations north of the Rio Grande. The greatest attraction for the vultures was its city market, as described in 1834 by Charleston’s Reverend John Bachman:

It is well known that the roof of our market-house is covered with these birds every morning, waiting for any little scrap of fresh meat that may be thrown to them by the butchers. At our slaughter-pens, the offal is quickly devoured by our vultures, whilst it is yet warm from the recent death of the slain animal.<sup>[31]</sup>

The city’s butchers appreciated their ever-ready waste disposal service, and routinely threw scraps of meat out into the cobblestoned street ([right](#)), where both Turkey and Black Vultures gathered daily and became exceedingly tame, dodging around and between pedestrians and their primary competitors, the city Dogs, to grab the scraps. Although Charleston’s Turkey Vultures have received the most attention, since it



later became unusual for that species to take to urban areas, the city’s Black Vultures were probably far more numerous; on the South Carolina coast, Black Vultures were estimated to outnumber Turkey Vultures by at least forty to one.<sup>[32]</sup> The vultures were so tame that they could be petted by passers-by,<sup>[33]</sup> and they were protected by popular sentiment and, at times, by city ordinances prohibiting any molestation or killing of the birds.<sup>[34]</sup> In the 1870s the shooting of a Charleston vulture was punishable by a five-dollar fine, quite a substantial sum for the time.<sup>[35]</sup> Scavenging services were highly regarded, and the vultures were held in esteem for the relative cleanliness that they provided for Charleston’s citizenry.

Not even Charleston’s vultures were wholly urban creatures. Audubon mentioned that at night, the Black Vultures of Charleston retired to a roost in woods across the Ashley River, about two miles (3.2 km) from the city.<sup>[36]</sup> He also noted that they seemed less numerous in the city during breeding season (undoubtedly, since half of the breeding birds would be incubating or brooding their young



most of the time), and suggested that “the individuals which are no longer capable of breeding, spend all their time in and about the cities, and roost on the roofs and chimneys. They go out, in company with the Turkey Buzzards, to the yards of the hospitals and asylums, to feed on the remains of the provisions cooked there, which are regularly thrown out to them.”<sup>[37]</sup> Many exaggerated tales were told about the numbers and inescapable prevalence of Charleston’s vultures. Some were still passed down among Charlestonians late into the 20th century, after the birds were long gone.<sup>[38]</sup> One since-forgotten poet even penned a brief salute to the birds in verse; and this is it, in its entirety:

A noble sight it is to see  
The buzzards in their glory  
Fall about an old beef knee  
And fight till they are gory<sup>[39]</sup>

Whatever might be the opinions of outsiders about their strange sanitation crew, the Charlestonians were never abashed about their birds and took no trouble to hide their existence from the rest of the world. A guidebook to an 1870 city fair included these eloquent words in praise (or at least defense) of the vultures, written by an unfortunately anonymous contributor:

The Charleston Eagle - this melancholy bird, vulgarly called a buzzard, is one of the peculiar institutions of our beloved metropolis, that deserves a passing notice at our hands. The headquarters of the eagle are in Market Street, the neighborhood of the butchers’ temple, and there, of a fine morning, he may be seen in all his glory, flying, flapping, hopping, standing, fighting, stealing, walking, sailing, running. The eagle is a sombre bird, dark of hue, gloomy in countenance, and remarkably taciturn - that flies without a song and eats without a quack. So far this eagle is respectable - gravity is dignity, silence is wisdom. But, alas! for his respectability, the Charleston Eagle is a glutton. The race to which he belongs are winged hyenas, they scent corpses from afar; but our bird has become, by habit and education, simply a glutton, gorging himself on refuse meat which is not yet putrid. He might prefer his food a little more game, if allowed to indulge in the natural idiosyncrasies of his appetite, but he meets with much competition in the eating business, and must swallow his food quickly or not at all. Where his respectability ends, however, his utility begins, and in this he resembles many an unfeathered biped who makes his living by doing the dirty work of life. Our eagle might flap his sombre wings and shake his melancholy head with the unction of a parson and the dignity of a judge, and yet be a lawful target for every wandering brickbat, mischievous arrow, or idle ball; but fortunately for his comfort and safety he can eat dirt, for which quality he was promoted by our sage forefathers to the position of scavenger, and presented with the freedom of the city, and with a perpetual insurance on his life.<sup>[40]</sup>

As late as the 1940s, the vultures were so visibly numerous that Yankee visitors to Charleston were disparagingly nicknaming it “Buzzard Town,” although by then it seems that the city dump, rather than the market (which had been temporarily flattened by a hurricane in 1938), was the primary source of food for the birds.<sup>[41]</sup> Probably the only reason that the citizens of Charleston weren’t nicknamed *buzzards* was that the moniker had already been taken, by the inhabitants of the state of Georgia, who were so named because they also protected the birds by law.<sup>[42]</sup>

Although vultures had undoubted sanitary and entertainment value to the people of the South, they seem to have largely been taken for granted by Southerners. However, the vultures assumed greater significance to a few. In his 1908 book *The Lay of the Land*, the American writer Dallas Lore Sharp recounted how he returned to Haleyville, Alabama after spending years in Boston, where vultures were much rarer. Once there, he felt an overwhelming desire to see the nest of a pair of Turkey Vultures in a nearby swamp – much to the consternation and perplexity of his family and

friends. He was unsure why he felt this way about the “buzzards,” birds that, to most, were useful but unremarkable fixtures of the South:

Perhaps my years of absence from the skies of the buzzard account for it. Yet it was never mere bird, mere buzzard, to me; so much more than buzzard, indeed, that I often wish it would sail into these empty New England skies. How eagerly I watch for it when homeward bound toward Jersey! The moment I cross the Delaware [River] I begin to search the skies, and I know, for sure, when it swims into view, that I am near the blessed fields once more. No matter how wide and free, how full of clouds and color, my sky to the end will always need a soaring buzzard.<sup>[43]</sup>

The tolerant and sometimes downright affectionate attitudes found among these descendents of European settlers were a remarkable contrast to the traditional loathing of vultures found in most of Europe. There were few areas in Europe where vultures as secure from molestation and persecution as they were in the southern US; but the urban vultures in the Americas were, in a sense, not thought of as “vultures” at all. In most of the European countries responsible for the immigrant influx to the Americas, vultures were either absent entirely (as in Britain and Ireland), or restricted to remote areas by intolerance and persecution, and either way were unfamiliar to the average person. In most European languages, the native word(s) for *vulture* referred unmistakably to a bird of the wilderness. An *urban vulture* would have been oxymoronic, unless the vulture in question was confined to a menagerie. In Europe, the role of urban avian scavenger was not taken by vultures, but by the Red and Black Kites, and therein lays an odd series of parallels.

Both American vultures and European kites were accepted and regarded with varying degrees of affection and familiar contempt as civil scavengers. In the Americas, just as in Europe, these scavengers were protected by tradition, and, in some cases, by law. In 16th century London, it was strictly forbidden to harm the city’s resident Red Kites,<sup>[44]</sup> just as it was prohibited to harm vultures in 19th century Charleston. The services of kites and vultures were valued highly enough that their less attractive traits, such as stealing food from picnickers’ hands (in the case of the kites) or roosting and defecating on rooftops (in the case of the vultures) were overlooked - at least until their services became unnecessary to urbanites. Both kites and vultures eventually declined in cities as improving standards of sanitation and the banishment of most domestic animals to rural areas made their scavenging habits superfluous and their presence unwanted. At that point, rural people with no traditions of tolerance towards any wild animals began to have the greater say in how the scavengers were treated, with predictable consequences. And, in the Americas as in Europe, the names for these familiar scavengers could be used as terms of contempt. To call someone a *kite* was a not-inconsiderable insult in British English until well after Shakespeare’s time. Another avian insult used by Shakespeare, *buzzard*, was later applied to the Turkey Vulture ([right](#)) (and



eventually to all vultures), and used in that manner in the Americas. However, as the Red Kite was exterminated in most of Britain, figurative use of its name lost its meaning; whereas the Turkey and Black Vultures are still numerous in the US, although not so conspicuous in urban areas as they once were, and so *buzzard* still rings true as a derogatory word in American English. But, although urban vultures might be made the butt of jokes, they were spoken of with the same affectionate humor with which shepherds might speak of their Dogs or grain farmers might speak of Cats; the vultures were *needed*, after all.

In warmer New World climes, where dead animals very quickly became putrid and disease was rampant, vultures were even more highly valued. Certainly the Spanish colonial authorities often recognized their importance; in most colonies, the killing of Turkey or Black vultures was prohibited, and punished with a severe fine – or worse. If the reports of contemporary travelers can be believed, during the 18<sup>th</sup> century, killing any vulture in what is now Costa Rica was a *capital offense*.<sup>[44]</sup> A French naturalist named Le Page du Pratz spent 16 years in what was then Spanish Louisiana in the 18<sup>th</sup> century, and noted the attitudes of the *peninsulare* elite to the region's Turkey Vultures:

The Spaniards forbid the killing of . . . [vultures] under pain of corporal punishment; for they do not use the whole carcass of the buffaloes which they kill, those birds eat what they leave, which otherwise, by rotting on the ground, would, according to them, infect the air.<sup>[45]</sup>

During his travels in northern South America, the British naturalist Charles Waterton learned that in Surinam, “the laws protect the Vulture, and the Spaniards of Angustura never think of molesting him.” When visiting the city in 1808, Waterton found the local vultures “as tame as domestic fowls; a person who had never seen a Vulture would have taken them for turkeys. They were very useful to the Spaniards; had it not been for them, the refuse of the slaughter-houses in Angustura would have caused an intolerable nuisance.”<sup>[46]</sup>

Charleton's closest Latin American counterpart as an urban vulture haven was undoubtedly Veracruz, a large Mexican port on the Gulf Coast east of Mexico City. Another Briton, George Ruxton, visited Veracruz in 1846, and found that, “Everywhere stalks the “sopilote” (turkey-buzzard) [actually the Black Vulture], sole tenant of the streets, feeding on the garbage and carrion which abound in every corner.” As ever, the Vultures' most consistent competition consisted of Dogs, “the most miserable of the genus *cur* . . . which contend in the streets with the sopilotes for carrion.”<sup>[47]</sup> In 1885, the American painter Susan Hale visited Veracruz, and gushed about the city and its birds in a letter to a friend:

You must know they keep vultures here to scavenge the streets, which they do very nicely, and these great beasts are sitting all about on the roofs, window-tops and gutters, and making a most delightful skwawk all the time; as if our sparrows and pigeons should have been the size of great turkeys; and they do keep the streets clean, for they shine with neatness. . . . The town is very quiet, except for these vultures conversing, and I have a cage full of canary-birds of my own at the window.

She also found that the colors of the buildings and the Vultures complemented each other; as many buildings had “projecting balconies with shelves over them for the vultures, which are painted red (vultures very black).”<sup>[48]</sup> Into the first decade of the 20<sup>th</sup> century, the Vultures of Veracruz were pervasive enough to prominently figure in the pages of travelers' guidebooks, and visitors to the city were warned that not only could they expect to be in close proximity to the *Zopilotes* at all times, supposedly even in restaurants and hotels (!), but that a fine of five *pesos* would be levied for the crime of harming one of the birds.<sup>[49]</sup> While considering the Vultures to be “disgusting birds,” Ruxton



acknowledged that they were “useful scavengers . . . performing the duty of the lazy Mexicans, [and] are therefore protected by law.”<sup>[50]</sup> The similar laws passed to protect similarly useful scavengers by similarly “lazy” Britons and Americans went conveniently unmentioned.

Although these vultures clearly were on no unfamiliar terms with humanity, others remained not just unadjusted to European settlers, but entirely undiscovered by science. The most remarkable of these finds, which eventually became a point of contention for generations of ornithological writers, was the second “new” vulture that William Bartram described in his *Travels*, which he found while journeying along the St. John’s River in what is now northeastern Florida in 1774 or 1775. Most of the birds that he mentioned still exist in Florida today (albeit in greatly reduced numbers); but there is one notable exception, which Bartram described as “a beautiful bird, near the size of the turkey buzzard, but his wings are much shorter. . . . I shall call this bird the painted vulture.” Bartram then described the physical characteristics of the bird. The pertinent points for differentiating the Painted Vulture from other vultures were

the bare skin on the neck . . . of a deep bright yellow colour, intermixed with coral red . . . the hinder part of the neck . . . is of a dun-purple colour, gradually becoming red as it approaches the yellow of the sides and forepart. The crown of the head is red; there are lobed lappets of a redish orange colour, which lay on the base of the upper mandible.

A spectacle of colors, this bird was; but Bartram thought none of its hues were as “singular” as the manner in which “a large portion of the stomach hangs down on the breast of the bird . . . this is partly concealed by the feathers of the breast, unless when it is loaded with food . . . and then it appears prominent.” Clinching the utter uniqueness of Bartram’s bird was the appearance of its plumage,

generally white or cream colour, except the quill-feathers of the wings and two or three rows of the coverts, which are of a beautiful dark brown; the tail which is large and white is tipped with this dark brown or black; the legs and feet of a clear white; the eye is encircled with a gold coloured iris; the pupil black.

Bartram’s description closely matches the appearance of only one living bird, the King Vulture, which in the present day ranges no further north than central Mexico. Aside from the geographic disparity, the only problems with this identification lie in Bartram’s claim that the Painted Vulture was smaller than the Turkey Vulture - Kings are larger than Turkeys, although more so in weight than in linear dimensions - and that it had a dark-tipped white tail; King Vultures have all-black tails. Bartram added that the local Amerindians, the Creeks or Mucogulges, would “construct their royal standard of the tail feather of this bird . . . this they carry with them when they go to a battle, but then it is painted with a zone of red within the brown tips; and in peaceable negotiations it is displayed new, clean and white.”<sup>[51]</sup>

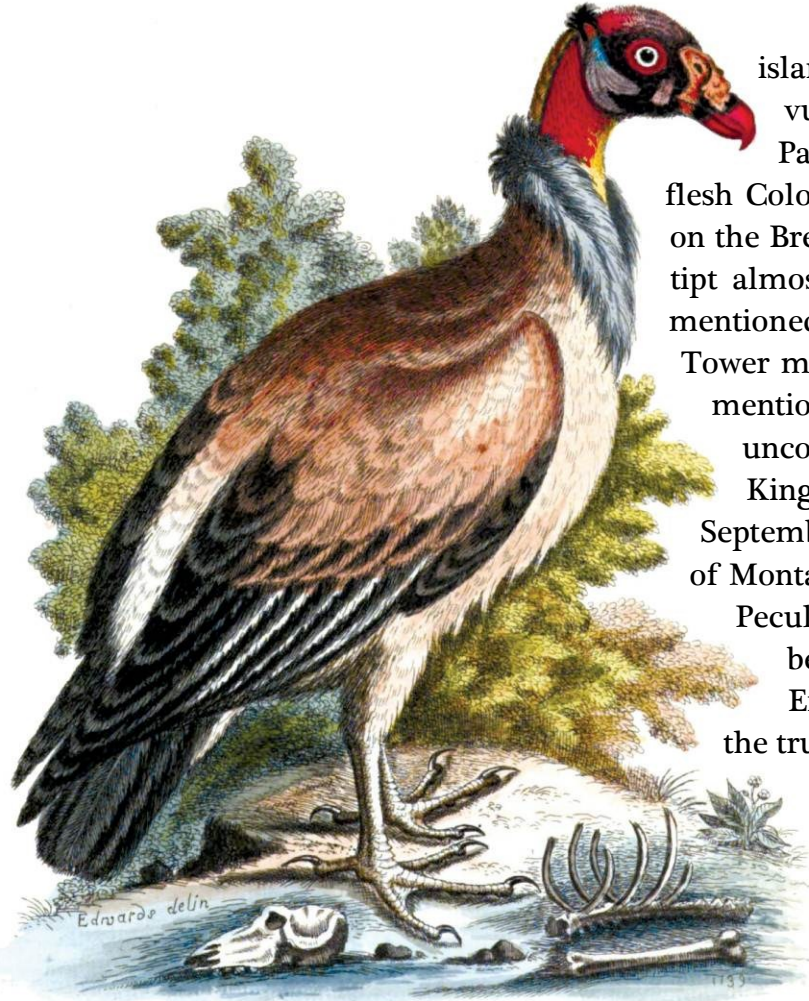
The occurrence of wild King Vultures in Florida would be exciting news today; but in Bartram’s day discoveries of new American animals were a fairly regular occurrence. For more than 40 years after this account was published, it attracted little notice and none of the controversy and criticism that would later swirl around it. The most prominent American ornithologists during Bartram’s lifetime, Alexander Wilson and John James Audubon, never mentioned the Painted Vulture in any of their writings, and certainly never saw one. Indeed, there wasn’t a single sighting of the bird, no matter how dubious, reported for more than 60 years. By the third decade of the 19th century (after Bartram’s death in 1823), some had begun to inquire about the bird; Thomas Nuttall mentioned in his 1832 *Manual of the Ornithology of the United States and Canada* that, “During a late journey to West

Florida I made many inquiries respecting this rare bird, but could only learn, that they were occasionally seen near the sea-coast of the Gulf of Mexico.” If these sightings were correct, the Painted Vulture inhabited western as well as eastern Florida.

The storm of controversy over this crypto-vulture began to break with John Cassin’s statement in the *General Synopsis of North American Ornithology*, published in 1853, that the Painted Vulture’s “occurrence has never been noticed since the time of the accurate and veracious naturalist who first described it, and his careful description . . . seems to clearly indicate it to be a species entirely unknown.” Cassin noted that the Painted Vulture was “related evidently to the King Vulture . . . but that species has a black tail,” and concluded that, “There is no more inviting nor more singular problem in North American Ornithology.” Five years later, Cassin reported that “the sacred vulture of Bartram . . . has not been observed or identified anywhere since his time. This has tended to throw a doubt on its existence”. But he then claimed that “recent [unspecified] information” made it likely that the Painted Vulture “is found about Lake Okechobee, in Southern Florida, where it is called king buzzard.” Other commentators were more skeptical about Bartram’s vulture, and some were downright dismissive. One highly respected ornithologist who edited the ornithological journal *The Auk* concluded in 1871 that the “Painted or Sacred Vulture” was in fact “a *purely mythical species*, notwithstanding the high reputation for veracity generally accorded to Mr. Bartram.” His reasoning for this conclusion was that “Florida has of late been too often traversed by naturalists, *and especially all the parts visited by Bartram*, for a bird of so striking an appearance, and so numerous as Bartram represented his [vulture] to be, to remain undiscovered if such a species exists there.” He also revealed his profound ignorance by throwing in a bit of combined vulture- and Indian-bashing for good measure, claiming the feathers used by the Creek Amerindians (whose culture had by then been wiped out) must have been those of Bald Eagles, as “the tail feathers of so foul a bird as the vulture must in all probability be too ill scented to suit even the unfastidious taste of an Indian.”<sup>[52]</sup> After that, it seemed that the die was cast: Bartram was either a grossly incompetent observer prone to wild flights of imagination, or a liar, and the Painted Vulture never existed. But the story of this revenant of American ornithology doesn’t end there.

In October 1936, the very same journal, *The Auk*, published a riposte to Bartram’s critics, written by Francis Harper. Harper declared that, “Bartram’s honesty is unimpeachable, and the time has rather definitely passed when his natural history observations can be seriously challenged”; further, “it cannot be reasonably doubted that he observed in Florida either the King Vulture or a closely similar species.” Harper believed that Bartram was incorrect in one respect, but only in one that supported the factuality of his observations. Despite Bartram’s belief that the Painted Vulture was “not mentioned in history” there were in fact several earlier appearances of an odd and colorful American vulture in ornithological literature. The earliest was probably a 1651 description of the “Cozcaquauhltli” or “Regina Aurarum,” a vulture with red legs and yellow iris. A Spanish missionary named Domingo Navarrette saw a bird he dubbed the “King of the Zopilotes” in southeastern North America several times in the 17<sup>th</sup> century, and recalled it as “one of the finest Birds that may be seen. I had often heard it prais’d; and thought they over-did it but when I saw the Creature, I thought the Description far short of it.”

Oddly, enough, the next two descriptions of the bird hail not from the Americas, but from Britain; apparently a few live Painted Vultures were captured and taken across the Atlantic even before Bartram saw the species in Florida. The English naturalist Eleazar Albin mentioned the “Warwovwen, or Indian Vulture,” which he saw in captivity in England, in his *A Natural History of Birds* published in the 1730s. This bird was supposedly captured in the East Indies (the complex of



*The King of the Vultures.*

islands between Asia and Australia, where there are no vultures), but the description of the bird matches the Painted Vulture closely, including a “Craw . . . of a flesh Colour, and bare of Feathers hanging down like a Bag on the Breast” and a “Tail composed of twelve white Feathers tipt almost half way with Black.”<sup>[53]</sup> Another such bird was mentioned in a 1741 children’s guidebook to the London Tower menagerie, *Curiosities in the Tower of London*. This mentioned among the menagerie’s creatures “an uncommon, large, beautiful Bird, called Warwoven, or King of the Vawous. It was brought to the Tower in September last, and was a present from his grace the Duke of Montagu. It is somewhat lesser [in size] than the Eagle.”

Peculiarly, this guidebook, too, claimed that the bird had been found in the East Indies,<sup>[54]</sup> suggesting that the English were none too interested in inquiring after the true origins of their captive animals.

Closer to home, the early American naturalist George Edwards both described and illustrated (left) the Painted Vulture in Volume I of his *Natural History of Uncommon Birds*, published in 1743 but apparently unknown to Bartram. Edwards wrote that the vulture had a black-tipped tail, white iris, and “Legs and Feet

of a dirty, white Colour,” and elsewhere wrote that “the gayest and finest bird I have seen, is the *King of the Copilotes*, which I saw several times in the Port of *Acapulco* [present-day Daytona Beach], and never had enough of looking at him, still more and more admiring his Beauty, Stateliness, and Grace.” Adding even more of a multinational character to the investigation was Le Page du Pratz, the French explorer who wrote in his 1758 *Histoire de la Louisiane* of the “king of birds . . . smaller than the eagle of the Alps; but it is a much finer bird, being almost entirely white, and having only the extremity of its quills black.”

As other writers besides Bartram also described the Painted Vulture as possessing a white, black-tipped tail, it’s probable that these birds represented a distinct color variation or perhaps even a subspecies of the King Vulture that now no longer exists; a situation that has also been documented for many other species of animal. All in all, Francis Harper declared that “the conclusion seems inescapable that Bartram actually met with his ‘*Vultur sacra*’ in Florida,” and suggested that “the King Vulture be recorded henceforth among the birds now extinct in the United States . . . having been observed *and collected* (though probably not preserved) by Bartram along the St. John’s River in 1774 or 1775.”

This raises one more question: what happened to the colorful lord of the Florida savannas? It certainly had disappeared by the middle of 19th century, before white settlement and disturbance had made its habitat unlivable; and so, unless the Amerindian inhabitants of the region slaughtered it en masse for its feathers, humans may not be solely to blame. There are two interrelated reasons that, together, provide a likely explanation. The Floridian King Vulture population was isolated by historical times; there may have been occasional vagrants reaching it by traveling from the Mexican



population eastwards along the Gulf Coast to Florida, but otherwise it was entirely cut off from the remainder of the species in Central and South America. Isolated animal populations tend to be small in numbers and living right at the frontier of the conditions that their species can tolerate, and are therefore extremely vulnerable to any major changes. One such major change evidently occurred in Florida in the first half of the 19th century: a marked cooling trend, bringing severe frosts to a peninsula that had previously enjoyed a long warm period, with very mild winters that allowed tropical flora and fauna to flourish. In the winter of 1835, these frosts wiped out the northern population of the royal palm tree, another species discovered by Bartram along the St. John's River, and which now exists in Florida only at its southernmost extremity, the warmest, most tropical part of the entire continental United States.

The frosts may have dealt the same losing hand to the peninsula's King Vultures; they are tropical birds, after all, with no adaptations that might allow them to deal with freezing temperatures. Captive King Vultures are notoriously sensitive to cold, and northern zoos must keep them in winter quarters along with other thermophilic birds like flamingoes and lorikeets if they are to survive unharmed. An unfortunate King Vulture kept in the Schönbrunn Zoo in Germany was not afforded such refuge during one harsh winter, and, as a result, lost all of its toes to frostbite;<sup>[55]</sup> such injuries would spell certain death for a wild vulture. If any of the Floridian King Vultures were still alive after the frosts, they assuredly would have sought out more welcoming climes elsewhere; unfortunately, they had nowhere else to go. Southern Florida is essentially a gigantic swamp, and hostile terrain to a bird of forest and savanna like the King Vulture. King Vultures cannot cross wide bodies of water, unlike their more buoyant relations, the Turkey Vultures, so flying south to the Florida Keys or Cuba wasn't an option. In the end, the Painted Vultures most likely just quietly died out, their passing unnoticed and unremarked upon, except perhaps by the Creek tribe of Florida. Since then, the King Vulture has exclusively been a denizen of points south of the Rio Grande. A few authors have mistakenly written that it occurs in Arizona or Texas; while that may have been possible (though not likely) in Bartram's time, it isn't today, because the destruction of Mexico's forests means that there is no King Vulture-favored habitat anywhere near the United States.<sup>[56]</sup> Given the current trend of global warming, Florida's climate might again become agreeable to the birds; but considering the sprawling urbanization that has since overtaken their habitat, the possibility of successful reintroduction of King Vultures is remote indeed. Like everyone else in the United States, Floridians must now journey to Central or South America, or to a zoo, if they wish to see a King Vulture.

Elsewhere in the Americas, the local disappearance of vultures could most often be attributed to concerted attempts to get rid of them, especially where native attitudes towards the birds conflicted with the beliefs that the European colonial rulers attempted to force upon them. The [Andean Condor](#) was indisputably the most venerated bird of pre-Columbian South America, to the extent that one of the native names for it, *Kuntur*, would become the only Amerindian name for a vulture to be adopted and commonly used in the English language. In the colonial settlements of the Andes, the Spaniards saw the *Kuntur* and the beliefs surrounding it as serious, unwanted competition for the Christian imagery that they were trying to goad the natives into accepting, and so encouraged natives to turn against the Condors in rituals. This was most spectacularly and gruesomely exhibited in the ritual variously known as the *cóndor-rachi*, "tearing of the condor to pieces," or *arranque del cóndor*, "pulling of the condor." It took place in the mountains of northern Peru, where Jerry and Libby McGahan, reporting for the *National Geographic* in 1971, witnessed it in a village called Cashapampa. The Condors were caught for this festival by pit-trapping, in which a man waited in a pit draped over

with cloth near a carrion bait. When Condors began to arrive, the trapper would grab the nearest one by its legs. About 10 to 15 Condors were used in the fiestas every year; none would survive them.

Brought to the village, each Condor was hung upside down from a rope at the top of a tall arch, low enough off the ground that a man on horseback could reach it. Riders then circled through the arch, each attempting to punch the Condor once as it flapped and flailed. Though most of the blows missed at first, the Condor was soon exhausted by its struggles, and it was then only a matter of time until the bird was beaten to death. After the Condor's demise, one of the riders would grab it by the throat and rip its tongue out with his teeth. That particular horseman would have the privilege of dispatching the team to capture next year's Condor. The dead Condor would then be taken down and dismembered by the fiesta crowd, its body torn apart to make talismans. This fiesta was solely of Spanish origin, originally intended to aid in the destruction of the pagan faith of the Incas by killing one of their most potent symbols. In the early colonial period during the 16<sup>th</sup> century, the Spanish authorities actively sought out ways to reduce the numbers of Condors (which they viewed as dangerous predators) by encouraging the natives to kill the birds,<sup>[57]</sup> the *cóndor-rachi* may have started as one of these efforts. It was unexpectedly successful, since Condors continued to be killed in the festival long after the Spanish were ousted from South America.

Nevertheless, in the 19th century several Andean nations would choose the Andean Condor as their national symbol after freeing themselves from Spanish rule. Cultural manifestations of the Andean Condor since the 15th century are neither strictly European nor strictly Amerindian, but include elements of both. While this meeting of cultural traditions is sometimes harmonious, as in the use of condors in coats of arms patterned after Old World eagle symbols, it is occasionally dramatically discordant - as in the Condor-bull ritual, which is most definitely a product of post-Columbian times. This ritual (also witnessed and recounted by the McGahans) was normally held as part of the festivities following Peru's Independence Day, July 28, but was also sometimes conducted on or near December 8, the holy day of the Virgin of the Immaculate Conception.<sup>[58]</sup> Celebrants were called to the proceedings by a *wajrapukara*, a wind instrument made of cow horns. Some weeks before the festival, a number of Condors were trapped by killing an old stock animal, laying its carcass out, and waiting for the birds to arrive. If any showed, the men would burst out of hiding and throw *liwis*, three-stringed bolas, to immobilize the birds. Any captured Condors would then have their bills tied shut and be brought to the festival.

On the fourth day of the fiesta, Condor would be pitted against bull. The bull's hide would be pierced and threaded through with a rawhide strip, to which the Condor's legs would be tied. Then the bull would be let loose in an arena, and, "Amid shouts from spectators the bull plunged and twisted and hooked, trying to dislodge the bird. The Condor's immense wings flapped wildly as he sought to free himself, biting at the bloody hide of the infuriated animal." After a few minutes of this, both Condor and bull were quite exhausted; the Condor would be removed and placed in a dark room to recuperate. Originally, the bloodied bull was then sacrificed; but by the time the McGahans witnessed the fiesta, bulls were considered too valuable to kill, and so were left alive. On the sixth day of the fiesta, the *despidida* farewell ceremony was held. Jerry McGahan estimated that between a third and half of all of the Condors used in the fiesta perished while in captivity;<sup>[59]</sup> any surviving birds were taken to the top of a nearby mountain and set free, after being adorned with necklaces and given *chicha*, corn beer, to drink.<sup>[60]</sup> Despite the seeming violence of the ritual, the few villages that do still conduct the Condor-bull festival are careful to treat the vultures well, particularly if the native Quechua people are involved; it's popularly believed among the Quechua that anyone who harms a Condor is liable to struck by lightning.

The Condor-bull fiesta has often been interpreted as an allegory for the triumph of the native Andeans, in the form of the Condor, over the Spaniards, in the form of the bull, which would explain why it's traditionally performed following Independence Day. The Quechua people generally do not subscribe to this explanation; to them, both Condor and bull are fixtures of the mountains, and the blood shed by the bull is but an offering to *Mama Pacha* (Mother Earth). Nor is the ritual as ancient as is sometimes surmised; there seem to be no pre-Columbian local traditions of capturing Condors for any reason, and the earliest known account of a Condor-bull festival dates from the late 18<sup>th</sup> century. This ritual originally took place in many villages throughout the Andes; but since the 1970s, Peru's Ministry of Agriculture has forbidden the capture of the increasingly rare Condors except for scientific or cultural purposes. Only a few villages can legally use Condors under these rules; others either substitute another animal for the Condor, such as a Dog or duck, or have given up on the Condor-bull festival altogether.<sup>[61]</sup>

Benevolent attitudes towards vultures in the Americas are likely to owe more to pre-Columbian than post-Columbian ideas, which are much more evident in Latin America than in *El Norte*. In the early 20th century, an American named W. J. McGee learned just how differently the *mestizos* of Mexico viewed the vultures, when his party approached a ranch in Sonora State and one of them "wantonly shot at a vulture perched on a corral stake." The shot missed, and the vulture flew off none the worse; but some human denizens of the ranch who had been watching "were thrown into commotion." Coming from a society where the right to shoot any wild animal that crossed one's path was taken for granted, McGee and his party were a bit nonplussed at their reaction. Upon asking why the *rancheros* were so upset, McGee learned that "this was due to the fact that it was *their* vulture that so narrowly escaped; not the vulture of El Patron, La Señora, or any other resident, but one of the flock of vultures belonging collectively to the group of people."

McGee found the *rancheros'* ownership of the vultures a "shadowy" concept, "much less definite" than that of any domestic animal, as the birds were "seldom recognized individually . . . though sometimes a specially large or otherwise distinctive vulture receives a half-jocular sobriquet by which he is known to the youth and many of the adults." Nevertheless,

the people are well acquainted with the ordinary affairs of the birds . . . their sentiments are tolerant and friendly, ripening into vague guardianship and thereby into indefinite collective ownership; the creatures are not regarded as especially useful or valuable, but are considered harmless and companionable, and a fitting mark of the importance and respectability of the family *rancheria*. On their part, the birds are thoroughly familiar with all outdoor affairs of the human folk; they note the comings and goings of wanton boys and heartless herdsman and time their visits to house and corral accordingly. . . <sup>[62]</sup>

McGee thought that the vultures were "on such terms of intimacy with the residents of the *rancherias* that they might, with little effort, be coaxed into the domicils," in order to clean up after the residents, and perhaps even be trained to return to a given house like domestic poultry. But this wasn't done because "as the *rancheros* explain . . . they are unclean and foul-smelling birds, attractive enough at a little distance, but repulsive on nearer approach."<sup>[63]</sup>

A not-dissimilar familiarity with vultures was quietly developed over a period of several centuries by a group of people with far less freedom of action. Some of the vulture folklore of African-American slaves was similar to that of European-Americans, but much of it was clearly influenced both by the differing cultural origins of African-descended slaves, and by the drastically different circumstances that they endured once slavery developed into a system of institutionalized racism. It's difficult to think of any white equivalent to the black belief, prevalent during the slavery era of the



United States, that a meat thief had to fear the Turkey Vulture more than anything else - because if pork or lamb was stolen from the larder, and hidden in a loft or on the roof of a shed for safekeeping, the Vultures would be sure to smell it and begin circling over it. Their movements would alert the location of the meat to anyone who cared to watch, with predictable consequences for the thief.<sup>[64]</sup>

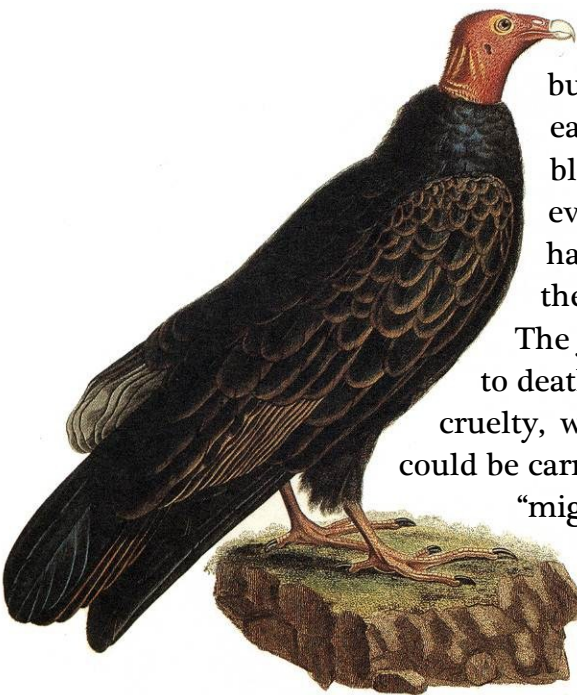
Most of the people brought to the Americas as slaves originated in West Africa, and so presumably were familiar to some degree with that region's most confiding vulture, the Hooded Vulture. Turkey Vultures are reasonably similar to Hooded Vultures in terms of size and appearance; and although behavioral similarities between the two are not much in evidence today, they would have been more evident when Turkey Vultures still acted as civil scavengers in the American South. Certainly, some Americans who journeyed to West Africa thought its Hooded Vultures so similar to the Turkey Vultures they were already familiar with that they dubbed them, with no intended irony, "turkey buzzards,"<sup>[65]</sup> and the first scientific description of the Hooded Vulture, in 1823, went so far as to place the species in the same genus as the Turkey Vulture.<sup>[66]</sup> This convergence between two unrelated birds thus afforded those African-Americans who were fortunate enough to retain knowledge of African folklore the opportunity to replace one vulture with another.

To rural people, the Turkey Vulture could be something of a meat-stealing pest, as many black folktales attest. One tale of the Gullah-speakers of the Carolina coast tells that as a man was leading a prize hog home from the market, the pig met with an unfortunate accident and died. As its carcass was far too heavy for one man to carry, he rushed home to get help; but he returned only to find that the hog's bones had been picked clean by vultures. The next time this man obtained a hog, instead of taking it home he promptly killed it and ate as much of it as possible. When people asked him why he was doing this, the rejoinder was, "Buzzard got ahead of me one time, but he'll never do it twice; this time, I killed the hog *before* he was dead!"<sup>[67]</sup> Slave medicine held that conditions from "rheumatism" (a term used for any unfamiliar ache) to stiff joints to smallpox could all be cured by rubbing the afflicted area with the grease of a stewed vulture,<sup>[68]</sup> and vulture feathers were commonly tied around the necks of infants to ease the pain of teething.<sup>[69]</sup> The blacks of Georgia said that if a person deeply desired something, all they had to do was wish for it as they threw a kiss at a vulture, and their wish would surely come true.<sup>[70]</sup> But one had to be careful not to speak to a vulture while it was flying overhead; if this was done, it was said that the bird would immediately vomit upon the speaker.<sup>[71]</sup>

Vultures were often verbally painted as underdogs in African-American folktales, which suggests that the storytellers and their listeners identified with the birds to some extent. The Africans who were forced into slavery, and their American descendents who never knew freedom, were all but powerless in the societies that their endless labor helped to fuel. What good would it be for a slave to tell stories about an invincible hero, which they and their listeners couldn't possibly relate to? The most popular figure in the folktales of American blacks was Brer Rabbit, who defeated his foes by wiliness and cunning, not with raw strength. The vulture could even be identified with the condition of the black race in America, although the comparison wasn't necessarily a positive one. As a Gullah metaphor put it, the "buzzard" might be both free and black, but it wasn't free enough to alight on top of anything except the dead, and even a free black man wasn't free to make money like the whites.<sup>[72]</sup> While many Americans of European descent saw little but laziness, cowardice, and greed in the Turkey Vulture, the blacks under their heels often saw something worthier of more respect.

One old and very popular black folktale tells that one bright day, both Brer Buzzard and Brer Hawk were sitting in a pine tree, when Hawk asked Buzzard how he made his living. Buzzard replied that he waited on the salvation of the Lord. Hawk harrumphed at this, saying he waited on the mercy of no one, and took what he wanted, whenever he wanted it. Buzzard told Hawk that was no way to live; and he, the patient one, would live to pick Hawk's impetuous bones. Hawk disagreed, and haughtily told Buzzard to watch how he got his living. Seeing a sparrow sitting on a dead tree limb, Hawk took off, gained some height, and promptly dove on his intended prey, only to impale himself on a sharp point of the broken-off tree limb. Unharmed, the sparrow merely flew off, leaving Hawk dying as he hung there. As Hawk's strength ebbed away, Buzzard slowly flew past, and called out "Uh huh, Brer Hawk, I told you I was going to live to pick your bones. I wait on the salvation of the lord." After the finishing the story, the teller would often add a moral along the lines of, "You young people have something to learn from Buzzard."<sup>[73]</sup> Still other stories painted a lyric portrait of the Turkey Vulture as a rather foolish bird. A tale told by Georgian blacks held up the Turkey Vulture as an example of a creature with no sense, because when it rained, instead of seeking shelter, the bird merely drew in its neck, hunched itself up, and generally looked pitiful; and when the sun shone again, the bird sat on top of a dead pine tree, stretched out its wings to dry, and promptly forgot about seeking shelter, since the rain was past for the moment. A careless man, it was said, was like the Turkey Buzzard, who thought only of the present and never planned for the future.<sup>[74]</sup>

A story told among the Congaree of the Carolina coast recounted how, one dark night on a sandbar, an old man had happened to see a gathering of owls walking to an apparently pre-determined meeting spot, like a set of men. The owls were shortly joined by many other animals, birds, mammals, and reptiles alike; and then two woodpeckers appeared, marching in a slow, stately procession, with a forlorn-looking Brer Buzzard between them. The three birds stopped in front of the biggest of the owls, who peered at the vulture with stern eyes. It dawned on the man that he was watching a court proceeding, just like that held by people; the big owl was the judge, the woodpeckers the bailiffs, the other animals the jury and witnesses, and Brer Buzzard the accused. Brer Buzzard's crime was a most heinous one: he had eaten Brer Rabbit; and not only eaten him, but while the rabbit's body was supposed to be under his care! Brer Buzzard made his living as an undertaker; and so, when Brer Rabbit died, it was his duty to sit up all night with the body. He did so, and as he looked appropriately mournful, with his naked head constantly bowed and his eyes seemingly on the verge of tears, all of the animals fully trusted that Brer Buzzard would bury the body with all due solemnity and ceremony.



And so the other animals went to work the next morning. When they returned, they found Brer Rabbit's body gone, all right, but it was abundantly clear that Brer Buzzard had not buried him, but eaten him. The rabbit's bones were scattered all around, there was blood and gristle everywhere, and Brer Buzzard was fat, sleepy, and even more slow-moving than usual. Brer Buzzard was immediately hauled up on charges; and as the human observer watched, each of the animals testified one by one to his shockingly insensitive gluttony. The judge had no choice but to convict Brer Buzzard, and sentenced him to death on the spot. Brer Fox, notorious to one and all for his trickery and cruelty, was appointed as executioner; but the only way that the sentence could be carried out was to deliver a lethal bite to Buzzard's jugular, and Fox was "mightier perticular 'bout what do an' what he put he mout' on." Rather

than bite down on Brer Buzzard's neck, which had been god knows where, Brer Fox just laughed, made an excuse about hearing dogs approaching through the woods, and vanished. And with no one to execute the sentence, Brer Buzzard was released, scot-free. The man who had observed all of this concluded his tale by saying, "Ain't nobody didn't do nuthen to Bur Buzzard, an' ain't never done nuthen to Buzzard. Dat's why so much buzzard. Dey always gits off."<sup>[75]</sup>

Though the tales told about the birds were generally lighthearted, African-Americans were well aware of the Turkey Vulture's potentially malign qualities. Some believed (or at least led children to believe) that if given a chance, a vulture would chase a child; and if it caught them, it would peck their eyes out.<sup>[76]</sup> For many years, parents sang this rhyme to their children to frighten them into slumber:

Baa, baa, black sheep, where's your lamb?  
Way down yonder in the valley  
The butterflies and buzzards pick his eyes out,  
And the poor little sheepie cries "Mammy"

- the implication being that if the children didn't close their eyes, then they too would be pecked out.<sup>[77]</sup> Undoubtedly the most sinister and unnerving of the blacks' vulture stories was the tale of the "King Buzzard," recorded by the folklorist Edward Adams in the 1920s. Adams listened to the rich oral literature of the blacks who lived along the Congaree River in South Carolina. It seems that Tad, an "ole swamper," was out walking along the edge of a swamp when he noticed that the surrounding air stank even worse than usual. As he continued his stroll, he saw something huge, bigger than a man, rise out of the gloom before him. As Tad stopped dead in his tracks, the figure spread its monstrous wings and emitted a horrid groaning noise, then approached him, revealing itself as a giant Turkey Vulture. The bird's eyes were blood-red, not the usual brown; and, in Tad's words, "he was the nastiest looking thing I ever saw. He stank in my nostrils. He smelled so bad, he stank to my eyes and ears." It appeared that the bird had been eating a dead and rank hog lying nearby, although Tad had never before seen a Vulture eating at night.

Scared half to death by this strange apparition, Tad felt unable to speak or move; but, propelled by some instinct, he leapt at the Vulture. It flapped into the air, still groaning, and started circling around him. As it flew, it began to spew vomit from its ivory bill; Tad was quite sure that the Vulture was trying to vomit on him. If so, it missed; the vomit instead splattered across the leaves and grass surrounding him, which withered and died in a matter of seconds. It seemed that the very air was being poisoned by the Vulture.

Tad turned and ran from the abomination, but he knew that it could fly faster than he could run. He was sure that he was done for if he couldn't reach a thicket where the Vulture couldn't reach him. As luck would have it, he found one; but inside it, he crawled around aimlessly for God knows how long. It was a minor miracle that he was able to find his way out again. Tad concluded his story with the fitting sentiment, "Jesus know I ain' never wan' see no more buzzard like dat."

Another man, named Tom, told Tad that the apparition he had encountered was no ordinary vulture – it was the legendary and universally dreaded King Buzzard. Long ago, Tom's father had told him that back in Africa, during the era of slave trade, there was a black tribal chief who made a career out of enticing Africans onto ships where the slave-traders could catch them and chain them for the voyage. The white traders paid him handsomely for his trouble, and over the years he grew wealthy by betraying thousands of his own people into permanent bondage. But so many were captured that



his domain became depopulated; when the traders realized this, they knocked the chief unconscious, chained him, and carried him onto their slave ship, as their very last capture.

The hard labor of slavery soon killed the chief, who had been accustomed to easy living from his ill-gotten gains. But when he died, there was no place for him in heaven, and hell, for once, didn't want him. As punishment for his crimes, the Great Master decreed that he must wander over the earth for all eternity. And so his spirit would be confined in the form of a great vulture, and carrion would be his only food. He was known to all the spirit world as the King Buzzard, and he must forever travel alone. Tom finished his account by mentioning that as frightening as the King Buzzard looked, he could never actually hurt anyone; for,

dictated that his evil bill  
and claws could  
never touch any  
living  
thing.

as part of his eternal punishment, it was



(Though it would still be inadvisable to get anywhere near his vomit.)<sup>[78]</sup>

The close bond between slaves and vultures in the American South led to assumptions of similarity between the humans and birds that, while typical for the time, are both astonishing and offensive today. Slaves and slavemasters alike both commonly told slave children that while white children had been brought to their families by storks, black children had been brought by “buzzards” – the reasoning probably being that while the stereotypically European stork was a predominantly white bird, the Turkey and Black Vultures were predominantly black. One slave's lullaby held the refrain: “You was hatched from a buzzard's egg / My little colored chile / But you are jes as sweet to me / My little colored chile.” In the American South, white fatherhood of children born to black mothers was

quite common, but a very sensitive topic for both races (not least because it frequently involved rape). Thus the issue was often skirted by both whites and blacks by stating that such children had been laid by the “buzzards” and hatched by the sun.<sup>[79]</sup> Beliefs that vultures had a hand in the parentage of blacks weren’t only held in the racially charged southern US, although they were probably more prevalent there than anywhere else. Many of the Amerindian tribes of South America believe in transmigration of souls from humans to animals and vice versa, and the external appearances of both people and animals play an important part in determining which soul goes where. Thus, the members of the Bororo tribe may only transmigrate into macaws, whereas white people will become white herons – and blacks, of course, become *urubus*, Black Vultures.<sup>[80]</sup>

Among blacks, Turkey Vultures were also said to be popular guises for shape-shifting witches,<sup>[81]</sup> and some said that a vulture alighting upon a house was a sign that one of the people who dwelled there was dead, or shortly would be.<sup>[82]</sup> A popular belief held that if the ever-present shadow of a vulture was seen before the vulture itself, then the seer would soon encounter a person whom they hadn’t been expecting.<sup>[83]</sup> On the other hand, many southern blacks believed that if a person was actually touched by a vulture’s shadow, death, illness, or some other misfortune would result.<sup>[84]</sup> Genuine belief in this cause and effect must have caused no small amount of distress, since it was a common occurrence. It once happened to the ornithologist A. C. Bent “when lying outstretched on a sandy Florida beach”; afterwards, he was told that sweeping their shadows across the ground was “a habit of vultures to determine whether a body is alive or dead,” but he didn’t believe that the birds could actually plan to have their shadows fall on a body. But why not? No one disputes their prowess in flight, and when trying to ascertain the vitality of a body the technique would certainly be easier and less dangerous than, for example, landing and trying to peck out the eyes. It worked for the vulture casing out Mr. Bent; for he was “startled by the shadow . . . and at once sat up,” prompting the bird to look elsewhere for carrion.<sup>[85]</sup>

Slaves had very good reason to believe that the normally benign vultures could bring misfortune; for North American slave-owners, like the South American Moche people before them, sometimes elected to put Black Vultures to the grisliest of uses. On rare occasions, they utilized the sociable, aggressive birds to torture and kill their charges - particularly slaves who were accused of attacking whites. In the book *Letters From An American Farmer*, published in 1782, a Pennsylvania man named J. Hector St. John de Crèvecoeur recalled the horrors that awaited rebellious slaves in the antebellum South. Crèvecoeur was traveling in South Carolina, and was invited to dine with a plantation owner who lived not far outside of Charleston. He elected to travel to the plantation on foot, taking a path through a forest, when he heard “a sound resembling a deep rough voice, uttered, as I thought, a few inarticulate monosyllables.” Searching for the source of the sound, he soon found “something resembling a cage, suspended to the limbs of a tree; all the branches of which appeared covered with large birds of prey, fluttering about, and anxiously endeavouring to perch on the cage.”

He fired a gun in the general direction of the birds, frightening them a short distance away, and quickly discovered what had attracted them to the spot:

[H]orrid to think and painful to repeat, I perceived a negro, suspended in the cage, and left there to expire! I shudder when I recollect that the birds had already picked out his eyes, his cheek bones were bare; his arms had been attacked in several places, and his body seemed covered with a multitude of wounds. From the edges of the hollow sockets and from the lacerations with which he was disfigured, the blood slowly dropped, and tinged the ground beneath. No sooner were the birds flown, than swarms of insects covered the whole body of this unfortunate wretch, eager to feed on his mangled flesh and to drink his blood.

Although the man was blind, he still heard Crevècoeur's approach, and begged him for water. Crevècoeur gave him some, meanwhile thinking that, "Had I had a ball in my gun, I certainly should have despatched him; but finding myself unable to perform so kind an office, I sought, though trembling, to relieve him as well as I could." When Crevècoeur asked the man how long he had been hanging in the cage, he responded: "Two days, and me no die; the birds, the birds; aaah me!"

"Oppressed with the reflections which this shocking spectacle afforded me," Crevècoeur walked on to the house of the plantation to which the slave belonged. There, he was told that the slave was meted out this extreme punishment "on account of his having killed the overseer of the plantation," and that "the laws of self-preservation rendered such executions necessary."<sup>[86]</sup> Although Crevècoeur wasn't experienced enough to identify the birds involved, given the location and circumstances, they were most likely Black Vultures.

Unfortunately, this sort of punishment was not an isolated occurrence, at least not in the slavery stronghold of South Carolina. One of the most remarkable documents of the antebellum South is the book *Slavery in the United States*, co-written by an anonymous slave (published under the pen name Charles Ball) and a prominent abolitionist attorney named Charles Fisher. In this book, first published in 1837, Ball recounted a rare instance of slave-on-freeperson violent crime: in rural South Carolina, a young white woman was abducted, held captive, and (presumably) raped by two mulatto slaves. The local whites initially believed Ball responsible for the kidnapping, and tortured him to extract a confession. He was saved from summary execution only by the brother of the missing woman, who had witnessed the abduction and insisted that Ball wasn't the culprit. When both of the true culprits were caught and their victim rescued (only to die of injuries a few days later), the enraged whites debated not whether the slaves should be killed, but what would be the most agonizing and therefore desirable way *to* kill them:

One proposed to burn them, another to flay them alive, and a third to starve them to death, and many other modes of slowly and tormentingly extinguishing life, were named; but that which was finally adopted, was, of all others, the most horrible. The wretches were unanimously sentenced to be stripped naked, and bound down securely upon their backs, on the naked earth, in sight of each other; to have their mouths closely covered with bandages, to prevent them from making a noise to frighten away the birds, and in this manner to be left, to be devoured alive by the carrion crows [Black Vultures] and buzzards [Turkey Vultures], which swarm in every part of South Carolina.<sup>[87]</sup>

With this mode of execution agreed upon, the mulatto slaves

were divested of their clothes, stretched upon their backs on the ground; their mouths bandaged with handkerchiefs--their limbs extended--and these, together with their necks, being crossed by numerous poles, were kept close to the earth by forked sticks driven into the ground, so as to prevent the possibility of moving any part of their persons; and in this manner these wicked men were left to be torn in pieces, by birds of prey. The buzzards, and carrion crows, always attack dead bodies by pulling out and consuming the eyes first. They then tear open the bowels, and feed upon the intestines.

Neither Ball nor, probably, anyone else stuck around to witness the fate of the two condemned slaves. When he and several of his fellow slaves returned to the execution ground a few days later, they found nothing left of the condemned but their bones. Ball recalled that, "Great flocks of buzzards, and carrion crows, were assembled in the trees, giving a dismal aspect to the woods; and I hastened to abandon [a] place, fraught with so many afflicting recollections." For years afterward, the forest where



the kidnapping and executions had taken place was avoided by black and white travelers alike, because it was believed to be haunted

by beings of unearthly make, whose groans, and death-struggles, were heard in the darkest recesses of the woods, amidst the flapping of the wings of vultures, the fluttering of carrion crows, and the dismal croaking of ravens. In the midst of this nocturnal din, the noise caused by the tearing of the flesh from the bones, was heard, and the panting breath of the agonized sufferer, quivering under the beaks of his tormentors, as they consumed his vitals, floated audibly upon the evening breeze.<sup>[88]</sup>

Ball's account seems to imply that this grisly punishment was used with some frequency in South Carolina; it certainly isn't likely that such an elaborate and unusual mode of execution could have been concocted on-the-spot on such short notice, or that the executioners would have been so certain of its effectiveness if they weren't already familiar with it.

It would be expected that such incidents, rumors and reminiscences of which would spread far and wide by word-of-mouth, would have colored the slaves' opinions of the vultures for the worse. Curiously enough, that doesn't seem to have been the case. Although the presence of the birds could certainly be sinister and ominous, to slaves, the "buzzards" were largely innocuous and sometimes useful, just as that of the Hooded Vulture had been to their African ancestors. Most importantly, to slaves the Turkey Vulture was a companion, someone who could keep company in a largely hostile world, and about whom no end of stories could be told. Plantation slaves, in particular, would have seen the birds in the working fields almost every day, and they were surely very familiar with many aspects of the Vultures' behavior. The people of West Africa had many names for the Hooded Vulture, but the slaves of North America, their language dictated by the necessity of simplification, had but two for its local counterpart: the familiar *buzzard*, and a name that now carries connotations far removed from its original meaning.

*Jim Crow* is nowadays infamous as the post-Civil War American system of laws and regulations that segregated blacks from whites, and that restricted their movements and behavior; but until the 1830s, the term referred to an all-purpose folk trickster known well to the African-Americans of the South,<sup>[89]</sup> who may have been partly patterned after one or the other of the local vultures. Some people of African descent did call Black Vultures *Jim Crows*, particularly in the southeastern US,<sup>[90]</sup> although this usage appears to have been uncommon compared to the use of *John Crow* for the Turkey Vulture. It's unclear whether Turkey Vultures were also dubbed *Jim Crows*, though it would be surprising if they never were, particularly in areas where the two species frequently intermingled. In much of Latin America and the Caribbean, vultures were and sometimes still are known as *John Crows*,<sup>[91]</sup> which may have originated as a corruption of *Carrion Crow*.<sup>[92]</sup> English speakers in British Honduras knew both the Black and Turkey Vulture as *John Crow*, although in order to distinguish the two, the Turkey was sometimes called *doctor John Crow*, perhaps as a none-too-subtle swipe at medicinal practitioners. The King Vulture was known, of course, as *King John Crow*,<sup>[93]</sup> or sometimes *albino John Crow*.<sup>[94]</sup> The etymology of *Jim/John Crow* is simple, at least compared to the convoluted reasoning behind the American use of *buzzard*: *John* and *Jim* (short for "James") were among the first proper names that any slave would learn, being both common and derived from the Bible. Real crows were common sights as they scavenged around towns and plantations for scraps, and it seems eminently logical that the much larger though similarly tame vultures would be called *crows*, albeit with a distinguishing Christian name to differentiate them from the smaller birds.<sup>[95]</sup> The popularity of the more familiar *Jim/John Crow* suggests that the blacks, whose folktales so often treated animals as persons in their own right, simply felt more comfortable thinking of them as acquaintances. After all,

these were people who knew the Great Blue Heron as *Po' Joe*,<sup>[96]</sup> and some of whom called each other *crow* and *buzzard* as terms of endearment.<sup>[97]</sup>

The chain of events that would tar *Jim Crow* with institutionalized racism began with Thomas "Daddy" Rice, a white minstrel who performed in the then-popular blackface vaudeville shows (for audiences that included both whites *and* blacks). Starting with its first performances in 1832, and for years afterwards, his most popular song was an odd ditty entitled "Jump Jim Crow." It originally started with the lines:

Oh Jim Crow's cum again / as you must all know / For he wheel about, he jump about, he do just so / And ebery time he jump about, he jump Jim Crow. / So I wheel about, I turn about / I do just so / And ebery time I wheel about, I jump Jim Crow / I kneel to de buzzard, and I bow to de crow / And ebery time I wheel about / I jump Jim Crow / So I wheel about . . .<sup>[98]</sup>

The lyrics of the song were altered frequently,<sup>[99]</sup> but they always included references to "wheeling about"; as well they should have, because it's thought that the movements of Rice's accompanying dance, rather than the music or lyrics of the song itself, led to the great popularity of "Jump Jim Crow." Apparently the dance involved little or no jumping, but a great deal of foot-shuffling and upper-body movement; and, of course, wheeling and turning like an airborne Jim Crow.<sup>[100]</sup> Rice almost certainly developed his routine from an already-extant song-and-dance tradition among southern blacks, popularly known as "Knock Jim Crow," which consisted in part of imitating the movements of birds.<sup>[101]</sup> Whether the birds that were imitated were the genuine Jim Crows - the vultures - or common American Crows, or both, is impossible to say for certain.

The trademark movements of a vulture might seem like an odd inspiration for a popular dance routine, but we've already seen that Amerindians across the hemisphere employed just such inspiration for their ritual dances. Additionally, there was at least one other traditional slave dance, also popularized by a white minstrel, dubbed the "Buzzard Lope,"<sup>[102]</sup> which had much the same imitative origin as "Jump Jim Crow." A dictionary published in 1890 defined *Buzzard Lope* as "the latest social institution of America . . . a dance taught to a Georgian negro by the turkey buzzard."<sup>[103]</sup> Unlike "Jump Jim Crow," this dance survived in one form or another into the 20th century; in Ben Burnan's 1938 book *Blow for a Landing* is found a description of a "buzzard dance," in which the dancer would "wheel in long, doleful circles. His arms became gaunt, flapping wings: his head swung jerkily from his cadaverous neck, peering, searching." Similar if not identical dances were found by anthropologists studying the customs of African-Americans who lived along the Georgia coast; and as late as 1958 there's a description of an old man demonstrating "a kind of buck-and-wing dance" dubbed the "Buzzard Flop."<sup>[104]</sup> Despite its vulturine origins, "Jump Jim Crow" proved to be a smash hit for Rice, who soon began to bill himself as "Jim Crow" Rice, and by the mid-1830s *Jim Crow* had entered the common parlance of white Americans, initially as a derogatory attachment. For example, editorial comment in a newspaper might call a disliked politician's behavior a "Jim Crow performance."<sup>[105]</sup> Along the same lines, abolitionist newspapers of the 1840s applied the term to railroad cars that separated their passengers by the color of their skin, in hopes of generating the appropriate amount of outrage about such bigoted arrangements.<sup>[106]</sup> The name then stuck so well that, during the post-Civil War era, *Jim Crow* was used as a catchall description for the system of institutional segregation that was practiced in the American South until the 1960s. All in all, vultures seem to have had a remarkable amount of influence upon African-American dance culture, for good or ill.

For much of the 19th and 20th centuries, a strident debate centered on another question of vulture behavior; indeed, it ultimately developed into one of the longest-lasting, most-written about,

and most hostile arguments in the history of natural science. The cause of this cathartic contretemps was deceptively simple: The question, “Do vultures find carrion by smelling it?” The portion of this debate devoted to the European vultures has already been covered [in Chapter 7](#); suffice to say that while no definite conclusion was reached by the early 19th century, when American naturalists began to enter the fray, a majority of those in the know leaned towards the conclusion that those Old World vultures had no sense of smell (which turned out to be true). The discovery of the Americas and their vultures opened up the whole can of worms again, though only gradually.

There were earlier arguments about the olfactory capabilities of the New World vultures, but the famed bird artist John James Audubon was largely responsible for turning this seemingly minor problem into one of the biggest controversies of the early scientific age. Audubon recounted in his *Ornithological Biography* of the 1830s that during his childhood, the ability of American vultures to smell their food was accepted as fact. Mark Catesby treated it as such in the mid-18th century, stating in his *Natural History of Carolina* that the “Turkey Buzzard” ([right](#)) had “a wonderful sagacity in smelling; no sooner there is a beast dead, but they are seen approaching from all quarters of the air.”<sup>[107]</sup> Doubts about the truth of this common supposition had formed in Audubon’s mind at least as early as 1820, when he recounted in his *Mississippi River Journals* an incident where he “saw some *Carrion Crows* and some *Turkey Buzzards* that were attracted by the scent?? of the Deer we had hung in the Woods??”<sup>[108]</sup> However, after living in the southern states of the US for some years, and discovering “thousands of times that they [the vultures] did not smell me when I approached them, covered by a tree, until within a few feet; and that when so near, or at a greater distance, I shewed myself to them, they instantly flew away much frightened,” Audubon decided to ascertain for himself whether this long-accepted wisdom of vultures with sensitive noses was actually true.



For his initial vulture scent experiment, Audubon stuffed the skin of a deer with dried grass and placed it in the middle of a field “as if the animal was dead and putrid.” He then retired to watch the proceedings. Shortly, “a Vulture” (the species is unspecified) “approached the skin, looked at it with apparent suspicion . . . then approaching the eyes, that were here solid globes of hard, dried, and painted clay, attacked first one and then the other” to no great effect. The bird then moved to the anterior portion of the stuffed deer and tore the stitches apart “until much fodder and hay was pulled out”, and yet found no flesh. After further fruitless efforts, the vulture took flight; and then “suddenly wheeling round and alighting,” Audubon saw it “kill a small garter snake, and swallow it in an



instant.” (This latter observation strongly suggests that the bird was a Black Vulture; Turkey Vultures are rarely if ever so quick and decisive when killing live prey.) In Audubon’s somewhat sarcastic words, “I plainly saw that the Vulture, which could not discover, through its *extraordinary* sense of smell, that no flesh, either fresh or putrid, existed about that skin, could at a glance see a snake, scarcely as thick as a man’s finger, alive, and destitute of odour, hundreds of yards distant.”

For the second experiment, Audubon had a large dead hog dumped into a ravine and then concealed with cane, “until I thought it would puzzle either Buzzards, Carrion Crows, or any other birds to see it”, and then left it for two days. This being early July, the carcass very quickly became putrid; and although Audubon “saw from time to time many Vultures, in search of food, sail over the field and ravine in all directions,” none seemed to find the carrion. Several dogs did feed from it, proving that it wasn’t so putrid as to be inedible. Audubon’s third experiment seems rather half-hearted compared to the first two; he merely took a young pig to the vicinity of the hog carcass, “put a knife through its neck, and made it bleed on the earth and grass”, then covered it with leaves and left to watch. Some vultures “saw the fresh blood, alighted about it, followed it down into the ravine, discovered by the blood the pig, and devoured it, when yet quite fresh”.

Audubon thought these experiments “fully conclusive” in determining that the vultures had no sense of smell; but as a sort of bravura finale, he captured alive “two young Vultures, about the size of pullets, covered yet with down, and looking more like quadrupeds than birds,” housed them in a disused chicken coop, and fed them various dead animals – including “a great number” of now-extinct Carolina Parakeets. When the young vultures’ down had begun to be replaced by feathers, Audubon “closed three sides of the cage with plank, leaving the front only with bars for them to see through, had the cage cleaned, washed, and sanded, to remove any filth attached to it from the putrid flesh that had been in it,” and turned the barred front of the cage away from the path he usually took when bringing food to the vultures. In this new condition, Audubon learned that if he approached the cage quietly “the young birds remained in their silent upright attitudes, until I shewed myself to them by turning to the front of their prison.” A dead animal hung from a pole and “cut open, with all of the entrails hanging loosely” elicited no response from the vultures unless it was visible to them, in which case the “hungry birds would jump against the bars, hiss furiously, and attempt in all their power to reach the food.”

“Satisfied within myself,” Audubon ceased his experiments after this, but continued to feed the vultures until they were fully grown; and then, appreciating their sanitary capabilities, “turned them out into the yard of the kitchen, for the purpose of picking up whatever substances might be thrown to them.” Unfortunately, the Black Vultures (for that’s undoubtedly what they were, considering their aggressiveness) proved to be a mortal menace to the young pigs and poultry also kept in the kitchen yard; and Audubon’s cook “unable to watch them, killed them both, to put an end to their depredations.” Audubon concluded from all of this that “the power of smelling in these birds has been grossly exaggerated, and that, if they can smell objects at any distance, they can see the same objects much farther.” Not even the greatly enlarged and perforated nostrils of the Turkey Vulture could convince him otherwise; he thought this physical peculiarity was solely due to the vultures’ need to keep their nasal passages from becoming clogged “from the filth that enters there, and stops their breathing.” An account of his vulture scent experiments was read by the experimenter himself to an audience in Britain on December 16, 1826, an event thereafter remembered by Audubon as his “maiden speech.” Nervous though he was, his speech was well received, and he was congratulated by all present at the end. Walking home afterwards, he “felt proud that I had at last broken the charm by

which men had so long been held in ignorance respecting the history of our Vultures.”<sup>[109]</sup> If only it were that easy.

Audubon’s speech stirred up a furor in the world of naturalists, and denunciations of his experiments and conclusions were not long in coming. At the forefront of his detractors was Charles Waterton, a Briton who already nursed a private feud with Audubon, and who declared at one point that the impudent American “ought to be whipped”. Waterton had previously traveled to British Guyana, observing vultures and many other creatures in the tropical forests, and in 1825 published a highly popular book about his discoveries there, which included the note, “I have killed lizards and frogs, and put them in a proper place for observation; as soon as they began to stink, the Aura [Turkey] Vulture invariably came and took them off.”<sup>[110]</sup> Waterton thus implied that the Turkey Vultures had found these morsels by scent alone. Although he never categorically stated the Turkey Vulture had a functional sense of smell, Waterton nevertheless took Audubon’s conclusions as a direct attack upon his scientific credibility (not to mention his ego). And so, in the wake of Audubon’s maiden speech, Waterton wrote and published an essay titled “On the Faculty of Scent of the Vulture,” which was essentially one long broadside aimed at Audubon and his outrageous vulture-scent views. The Audubon vs. Waterton feud soon exploded into one of the most colorfully named scientific debates in history, the “Vulture’s Nose Controversy,” with laymen and scientists on both shores of the Atlantic taking sides as “Nosarians,” who supported Waterton, or their nemeses, the “Anti-Nosarians,” who supported Audubon.<sup>[111]</sup>

Returning to America, Audubon found that “doubts excited by persons prejudiced against me, existed in the minds of some individuals,” and many were far from convinced that his conclusions were correct. He thus resolved to have similar vulture scent experiments carried out by a researcher whose honesty was unimpeachable: the Reverend John Bachman of Buzzard Town itself, Charleston, South Carolina; a man who was then widely reputed as a fine practical ornithologist. Bachman conducted his vulture-scent experiments in the winter of 1833-34. In the early 19th century, the various branches of science were not as insular as they are today. The Reverend John Bachman invited a variety of learned men to take part in his experiments, including the President of the College of South Carolina, several professors of medical colleges, and members of the Philosophical Society. It’s almost flattering to the vultures that so much brainpower was expended merely to ascertain how they found the carcasses of dead animals. Bachman wrote that a naturalist in the employ of the Charleston Philosophical Society “was in the habit of depositing at the foot of my garden, in the suburbs of Charleston, the fresh carcasses of the birds he had skinned, and in the course of half an hour, both species of Vulture, and particularly the Turkey Buzzard, came and devoured the whole. Nay, we discovered that Vultures fed on the bodies of those of their own species that had thus been exposed.” In their first vulture-scent experiment, Bachman and his team recovered the corpse of a vulture that had been killed by neighborhood boys, after it had already been plucked and partially eaten by a Turkey Vulture. They covered the dead vulture with rice chaff, and it thereafter remained untouched by its living brethren.

Bachman’s second experiment involved dumping a morass of dead animals and offal near his garden and erecting a brushwood-covered frame a foot above it, so that the carrion was hidden from the air, but “allowing the air to pass freely beneath it, so as to covey the effluvium far and wide.” 25 days later, not a single one of the hundreds of vultures seen nearby had fed on it, although the carrion had “become offensive” and Dogs “frequently visited the place.”

The Reverend’s third experiment is the most famous of all the vulture-scent trials, although it has often been falsely credited to Audubon. “A coarse painting on canvass was made, representing a

sheep skinned and cut open”, and placed on the ground. The results “proved very amusing”; some vultures discovered it and “commenced tugging at the painting. They seemed much disappointed and surprised, and after having satisfied their curiosity, flew away.” This sequence of events was repeated more than fifty times. Bachman then placed the painting “within fifteen feet of the place where the offal [from the previous experiment] was deposited;” the vultures turned up and walked around the painting, “but in no instance evinced the slighted symptoms of their having scented the offal which was so near”.

By this point, the offal was becoming rather ripe. “The most offensive portions” were laid out on the ground, covered with a thin cloth, and then fresh beef was laid on top of the cloth. When the vultures showed up, they immediately devoured the beef, but “although they were standing on a quantity beneath them, and although their bills were frequently within the eighth of an inch [3 mm] of this putrid matter, they did not discover it.” When the researchers tore a small hole in the cloth so that the vultures could see the offal, “they at once discovered it and began to devour it”; but when the torn cloth was replaced with a whole one, “they commenced eating the fresh pieces exhibited to their view, without discovering the hidden food they were trampling upon.” There might have been no end to these experiments, but Bachman and his team “feared, if prolonged, they might become offensive to the neighbours” (one gets the feeling that they already had), and so ceased their trials thereafter. The researchers’ report, published in the March 1834 issue of *Loudon’s Magazine of Natural History*, concluded with:

We the subscribers, having witnessed the experiments made on the habits of the Vultures of Carolina (*Cathartes Aura* and *Cathartes Jota*), commonly called Turkey Buzzard and Carrion Crow, feel assured that they devour fresh as well as putrid food of any kind, and that they are guided to their food altogether through their sense of sight, and not that of smell.<sup>[112]</sup>

It seems strange that neither Audubon nor Bachman took much care to differentiate between Turkey and Black Vultures in their experiments, even though the habits of the two species were obviously very different. Neither of them seem to have realized that one species may have possessed a sense of smell that the other didn’t have, nor did it occur to them that vultures might have more discriminating appetites than appearances would indicate, especially in a habitat as rich in carrion as Charleston; and that they might turn up their noses at unappetizing carrion, no matter how strongly it smelled. Regardless of the accuracy of their conclusions, the experiments of Audubon and Bachman seem to have pretty well settled the issue as far as their contemporaries were concerned, because few serious studies of the Turkey Vulture’s ability to smell were conducted afterwards. Charles Waterton, for one, was unconvinced; he continued to write and publish essays attacking Audubon until 1870, long after Audubon’s death and by which time it seems unlikely that anyone else would have cared.

On the whole, though, the issue was largely relegated to the backburner until 1927, when Frank M. Chapman of the American Museum of Natural History decided to tackle the issue. Chapman conducted his experiments on Barro Colorado Island, a 3,840-acre chunk of land that had been surrounded by water when the newly dug Panama Canal was first flooded. Isolated as it was from the surrounding forest, it became a superb natural laboratory. Unlike Audubon and Bachman, Chapman was careful to distinguish between Turkey and Black Vultures in his experiments. He was led to the conclusion that some of his results “leave no room for doubt that the Turkey Buzzard has a highly developed sense of smell,” but added that the opposite conclusion could be drawn from other results. The strongest evidence in favor of a sense of smell came from an experiment in which a two day-old Coati carcass, covered with grass, was located and uncovered by Turkey Vultures, and then



found by the birds five more times as it was moved to different hidden locations. Chapman wrote that “No one who saw the Buzzards coursing to and fro in increasingly short turns, alighting and going on foot direct to the invisible object, the odor from which had attracted them, could doubt that they were led only by their nose”; further, “it seems evident from these experiments that the Turkey Buzzard, under primitive conditions, is not a mere stupid gorging on carrion but a bird dependent for its existence on its powers of flight and *discriminating* use of its senses of sight and smell.”<sup>[113]</sup>

And yet, there were still doubters. Some thought that Turkey Vultures might be attracted to hidden carcasses not by smell, but by watching or hearing the swarms of flies that surrounded the decaying meat. A number of experimenters who worked with Turkey Vultures in the wild and in the laboratory followed in Chapman’s wake; but the most compelling evidence of all for the vulture’s nose was seen not by any ornithologist, but by petroleum engineers of the Union Oil Company in California. A retired Union Oil engineer named Ralph Openshaw related to Kenneth Stager, the Curator of Ornithology at the Los Angeles County Museum, that through 1938-39, his company was plagued by a number of leaks in a natural gas pipeline that ran from Orcutt Hill, California to the town of Avila. As the pipeline was 42 miles (68 km) long (and bearing in mind this was before computerized pressure sensors existed), it was no quick or easy matter to locate these leaks, especially if they occurred in rough terrain not readily accessible from roads. The Union Oil engineers were at a loss for an effective solution to the problem, until an oil engineer from Texas suggested a novel solution: pour a heavy concentration of ethyl mercaptan, an extremely strong-smelling organic chemical, into the pipeline; then watch for concentrations of Turkey Vultures circling above the pipeline, or perched near it, to find the leaks. Apparently, Texas oil engineers had known of the ability of Turkey Vultures to smell this chemical for some years, although it isn’t known exactly when (or how) this was first recognized. Probably more than a little skeptical, the California engineers nevertheless attempted this most unusual procedure; and it succeeded, spectacularly. After a powerful dose of ethyl mercaptan was added to the pipeline, teams of engineers traveled along its route, watching for Turkey Vultures. At several points where the odor of the chemical was very strong, the dusky birds were seen circling or perching near the pipeline, and examination of the pipe revealed leaks below each locus of vultures.<sup>[114]</sup>

Duly impressed by this anecdote, Stager devised and conducted his own series of vulture-scent trials, several of which used ethyl mercaptan as an attractant. These proved beyond doubt that not only did Turkey Vultures possess a very powerful sense of smell, among the strongest of any bird, that is very important in helping them to locate food; but that the vultures exhibited a distinct mode of flight, a “verification flight pattern,” when they located a promising odor.<sup>[115]</sup> Stager also conducted tests to verify the hypothesis that vultures might be attracted to hidden carrion by swarms of flies; these proved negative, for both Old and New World vultures.<sup>[116]</sup> Stager’s studies were published in 1964, finally closing the matter of the Turkey Vulture’s nose - 138 years after Audubon made his maiden speech. Let no one claim that ornithology is an overly hasty science! The fuel industry isn’t the only institution that’s attempted to make practical use of the Turkey Vulture’s remarkable nose. Recently, a police force in the German state of Saxony has attempted to train captive Turkey Vultures to track down the corpses of missing persons – by smelling them. The police investigators supervising the Vultures could simply trail them, like scavenging hunter-gatherers, until the birds located a body and descended to it. The Vultures have several potential advantages over the sharp-nosed Dogs that are ordinarily used for such work, namely that they can search a larger area in a much shorter period of time and that they can simply fly over thick vegetation and debris that would stymie the Dogs on the ground. Unfortunately, the three Vultures used in the trial run for this innovative idea were

largely uncooperative; the two younger birds were less interested in the training than in fighting with each other, and the oldest and most experienced of them preferred to forage on foot, rather than on the wing, and showed little inclination to distinguish the remains of humans from those of animals.<sup>[117]</sup> (Perhaps, to the Vultures, they all smell the same.)

There still remained the matter of the *other* vultures' noses, of course. The Black Vulture definitely does not have any functional sense of smell, as Audubon's and countless others' observations have demonstrated. Neither of the condors has one; no great disadvantage, since they mostly inhabit open country, are far too big to fly in thickly wooded areas that would limit visual searching, and are often alerted to the presence of carcasses by watching smaller scavengers, including Turkey Vultures, which they can easily dominate. The Turkey Vulture's closest relatives, the Greater and Lesser Yellow-headed Vultures, do have senses of smell. That of the Greater may be even stronger than the Turkey's, as this bird lives exclusively in heavily forested areas where eyesight alone is of dubious value in locating carcasses. The King Vulture, like the Greater Yellow-headed, is a bird prefers wooded habitats; however, it often flies at a great height and frequently seems to be alerted to carcasses by the presence of Turkey or Yellow-headed Vultures. Evidence pertaining to the King is less conclusive than that for the other vultures; it does have larger scent glands than the Black Vulture or the condors,<sup>[118]</sup> and it does sometimes arrive at forest carcasses before any Turkey or Yellow-headed Vultures show up.<sup>[119]</sup> More often, Turkey and Yellow-headed Vultures arrive at a forest carcass first, and King and Black Vultures show up later, apparently being alerted to the carrion's

presence by the movements of the vultures with noses. King Vultures have been seen closely observing the movements of Turkey Vultures,<sup>[120]</sup> presumably in hopes that the Turkeys will lead them to a carcass. It seems that if the King has any sense of smell, it is far weaker than the sharply refined sense possessed by the Turkey and Yellow-headed Vultures.

Aside from his quest to persuade the world of the truth of the Anti-Nosarian viewpoint, John James Audubon nursed another notable vulture-themed ambition: to travel to the Pacific coast and see a Condor, then only recently known to the people of the United States, perhaps in order to paint one from a specimen in the hand. He never did manage to make that journey west, but he did paint an accurate portrait of a California Condor ([left](#)), based on sketches drawn by persons who had seen live Condors. Audubon's son, James Woodhouse Audubon, managed to fulfill his father's dream by traveling to California and seeing a Condor, then known as a *California vulture*.<sup>[121]</sup> The story of the bird that infatuated two generations of Audubons is intertwined with and directly related to the evolution of the United States from an agrarian society centered on the east coast, to a frontier-devouring powerhouse, to the greatest industrial power on earth - and it begins with a serious miscalculation on the part of the Spanish government.

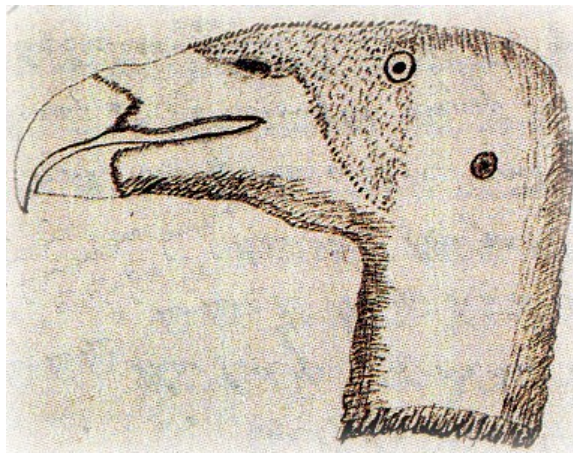


As the 19th century dawned, the vast portion of North America known as Spanish Louisiana was deeded by Spain to France, apparently because the Spanish hoped that France would be powerful enough to prevent the US from expanding into it, and would be willing to return it at a later date. Emperor Napoleon had other ideas; in order to simultaneously avoid war with the US, fund his wars in Europe, and give the British one more thing to worry about in the New World, he sold all 838,000 square miles (2,170,420 km<sup>2</sup>) of Louisiana to the fledgling United States for \$15 million in April 1803. Before the land had even come up for sale, President Thomas Jefferson dispatched a small (and illegal) expedition led by his personal secretary, Meriwether Lewis, and Captain William Clark of the US Army to explore western North America, make contact with its Amerindian inhabitants, and catalogue its flora and fauna. The expedition departed from St. Louis, then the westernmost outpost of the US, in May 1804, and set out into the unknown.

In the course of its epic journey, Lewis and Clark's Corps of Discovery encountered many mammals almost or entirely unknown in the eastern US: "small wolves," later to be known as Coyotes; herds of Bison numbering in the tens of thousands; and Grizzly Bears, of which Lewis once speculated that "these gentlemen will give us some amusement shortly as they soon begin now to copulate." There were ornithological finds in abundance, too; but the most spectacular of them wouldn't come until the Lewis and Clark reached the Cascades of the Columbia River, in what is now Oregon (which was actually well beyond the boundaries of the Purchase). On October 30, 1805, Clark wrote in his journal that "this day we Saw Some fiew of the large Buzzard. Capt. Lewis shot at one, those Buzzards are much larger than any other of ther Spece [species], or the largest Eagle, white under part of their wings, etc." Capt. Lewis evidently missed his shot; but Rubin Fields, who took aim at a California Condor feeding on a dead whale near the mouth of the Columbia River, did not. Clark again: "Rubin Fields Killed a Buzzard (Vulture) of the large Kind near the (Meat of the) whale we Saw (wt. 25 lbs. [11.4 kg]) measured from the tips of the wings across 9½ ft. [2.9 m], from the point of the Bill to the end of the tail 3 ft. 10¼ inches [1.2 m]." As the expedition continued along the Columbia, Clark, at least, developed a liking for this great vulture; his comment of January 3, 1806 that "the butifull Buzzard of the Columbia Still continue with us" marks him as the first of many Americans who would fall under its spell.

The expedition's definitive encounter with the "butifull Buzzard" happened on February 16, 1806, when two men brought a unique prize to Fort Clatsop:

[A] Buzzard or Vulture of had wounded and taken the largest Bird of North good order yet it wayed 25 might very well have 35 lbs. between the measured 9 feet 2 Inches. . clumsily, nor do I know prey alive but am induced have seen it feeding on and other fish which have waves on the sea coast, their principal food, but I have no doubt but that they also feed on flesh, we did not meet with this bird until we had decended the Columbia below the great falls, and have found them more abundant below the tide water than above. . . .



the Columbia which they alive. I believe this to be America. it was not in lbs. had it have been so it weighed 10 lbs. more or extremities of the wings it . . This bird flies very whether it ever seizes its to believe it does not, we the remains of the whale been thrown up by the these I believe constitute

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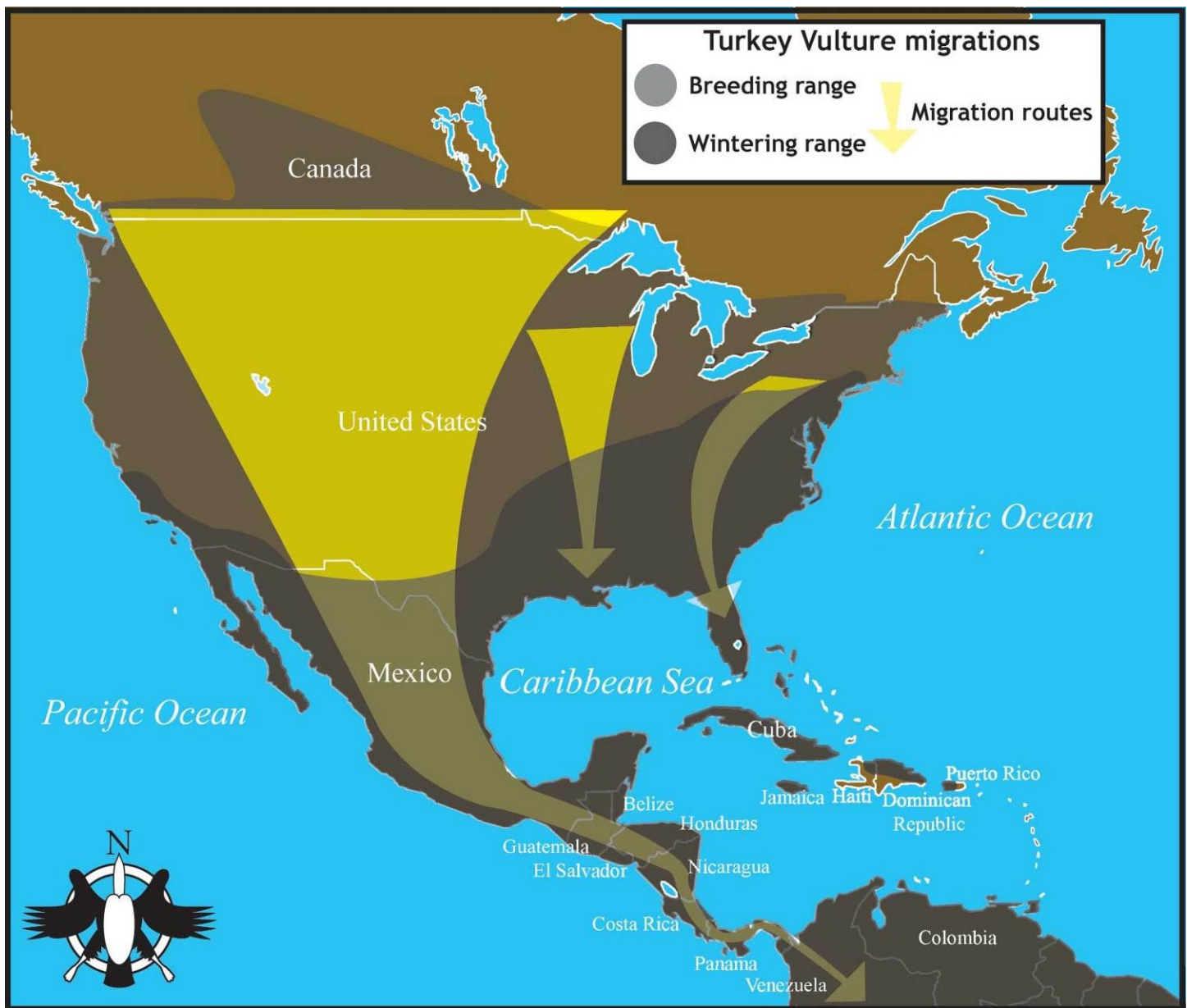
Clark also noted that “this is the same species of Bird which R. Field killed on the 18th of Nov. last and which is noticed on that day tho’ not fully discribed then I thought this of the Buzzard species.” In other words, Clark at first thought the bird similar to the Turkey Vultures that he and the rest of the expedition were already familiar with. However:

I now believe that this bird is reather of the Vulture genus than any other, tho’ it wants some of their characteristics particularly the hair on the neck, and the feathers on the legs. this is a handsom bird at a little distance. its neck is proportionably longer than those of the Hawk or Eagle. . . .

By “Vulture genus,” Clark probably meant the Old World vultures. If he had seen a griffon or Monk Vulture in a zoo, or even printed engravings of them, the Condor would indeed seem more similar to such huge, powerful birds than to the comparatively small and slight Turkey Vulture. Clark ended his account by mentioning that “Shannon and Labiesh informed us that when he approached this Vulture after wounding it, that it made a noise very much like the barking of a Dog,” (!) and, having had time to closely examine the Condor, his notes dwelled at length on the bird’s tongue, “long firm and broad” and “armed with firm cartelagenous prிக்கles pointing and bending inwards.” What more could be said?

When popular accounts of the expedition were first published a few years later, naturalists in and out of the US were surprised to hear of this gigantic vulture inhabiting the American West, the accounts of the earlier Spanish explorers who had encountered it having been largely forgotten. Many jumped to the conclusion that the birds Lewis and Clark described represented a heretofore unknown population of the Andean Condor; hence many bird books of the time describe the Andean Condor as a denizen of both North and South America. This mix-up would eventually lead to the bird being named the “California Condor” by ornithologists, though that name wouldn’t become popular with the people of California until the early 20th century. Until then, it was known as the *California vulture*, or simply the *vulture*,<sup>[122]</sup> as distinct from the *buzzard*.

The Lewis and Clark expedition met with Turkey Vultures as well; although, surprisingly, not until it had reached the Columbia River. Lewis’s entry for April 9, 1806 mentions “we saw some turkey buzzards this morning of the species common to the United States which are the first we have seen on this side of the rocky mountains.” These birds had probably just returned on their spring migrations a few days earlier, which explains why the expedition had managed to traverse half the continent without seeing any. Out of all of the vultures in North America, only the Turkey undertakes true migration, although Black Vultures sometimes make irregular seasonal movements. Generally speaking, Turkey Vultures depart from their breeding ranges during October and November, and return in March and April. Birds in the extreme north of the range depart earlier and return later; the Turkey Vultures of southern Canada, for example, usually leave during August and don’t return until late April. Many of the migrating vultures in the eastern US and Canada have been banded or tagged by ornithologists, so that their movements can be tracked. The records of these birds indicate that, at least east of the Mississippi, migrating Turkey Vultures merely move back and forth in North America; they don’t migrate any further south than the Gulf Coast. The population dwelling in western North America has been less studied, but it is thought that most if not all of these vultures migrate as far south as Mexico, and at least some of them fly all the way to South America.<sup>[123]</sup>



The movement of these birds offers one of the greatest natural spectacles that can still be seen in North America. The migrating Vultures keep to the same routes from year to year, meaning that interested observers can travel to a favored location during the migration and expect to see huge numbers of the birds, weather permitting. At Veracruz, Mexico, one can see thousands of Vultures darkening the sky during the prime flying hours on any day from mid-March to mid-April.<sup>[124]</sup> The Turkey Vultures often keep company with migrating raptors, like Broad-winged and Swainson's Hawks, but they usually far outnumber their aerial cohorts. Dependent on thermals for their flight, the Vultures fly only during the day; they roost on trees at night, but don't feed, and wait until thermals form before leaving in the morning. A rainstorm may strand the birds for hours.<sup>[125]</sup> They apparently never attempt to take a shortcut by flying across the Gulf of Mexico; although it's a mystery why not, since Turkey Vultures in South America will readily fly between the mainland and the Falkland Islands, which is a greater distance than that between the southernmost tip of Florida and the Yucatan Peninsula. This dislike of sea crossings ensures that the most tremendous numbers of Vultures are funneled into the isthmus of Panama, the narrowest point along the migration route. Watching the migration there at the beginning of March in 1950, the ornithologist Alexander

Wetmore estimated that a total of 15,000 Vultures passed overhead just in the hour before sunset, "an indication of the vast numbers concerned."<sup>[126]</sup>

As we saw [in Chapter 6](#), the predictable spectacle of the vulture migration contributed much to the folklore of the Amerindians familiar with it. Modern Americans usually take less notice of the movements of the birds, but there are exceptions. A few small towns in the Midwest and California have created festivals around the springtime return of the vultures; most famously Hinckley, Ohio, a township near Cleveland which has celebrated Buzzard Sunday (or sometimes just "Buzzard Day") for many decades. Hinckley's vultures have made a habit of nesting in the trees on a ridge overlooking the Rocky River at least since the early 19<sup>th</sup> century. This "Buzzard Roost" was protected from development as part of Cleveland's Metropark system, and so the Turkey Vultures continued to return even as much of the surrounding area was urbanized. But Buzzard Day proper didn't begin until 1957, when a newspaper reporter who had been told of the sharply scheduled annual return of the vultures predicted, in February, that they would return to Hinckley exactly on March 15. His article gained some popular attention, and when March 15 rolled around, the returning Turkey Vultures were greeted by thousands of visitors who had traveled to Hinckley for the sole purpose of seeing the prediction come true. The following year, the town's council officially proclaimed that the first Sunday following March 15 would be "Buzzard Sunday"; and the rest is history. Every year, thousands of people pack the streets of the small town during the festival, engaging in all manner of more or less vulture-associated activities to celebrate the return of the birds.<sup>[127]</sup> Incidentally, the majority of the Hinckley vultures are believed to winter in Okefenokee Swamp, Georgia, with some also journeying to Florida,<sup>[128]</sup> but, alas, the human denizens of these areas haven't yet reciprocated with wintertime Buzzard Days.

Turkey Vultures were and are rarer to the west of the Mississippi than to the east of it, but the birds would nevertheless become a familiar sight to the hordes of American settlers to the West who followed in the wake of Lewis and Clark. The western Vultures subsisted largely on the herd-forming mammals that roamed the plains and mountains of the west: Mule Deer, Pronghorn, and especially Bison. With California Condors restricted to the Pacific coast and Black Vultures only tentatively wandering north of the Rio Grande, the Turkey Vultures of the region had this resource largely to themselves. The Bison supplied a truly stupendous amount of carrion to scavengers; aside from Amerindians, the only significant predators of Bison were Gray Wolves, and perhaps Grizzly Bears. Even more than the herds of African megafauna, the numbers of Bison were controlled by natural disasters, disease, and starvation, rather than by predators; and each of those causes of death left carcasses behind, often in gigantic quantities. But even the most lethal natural disasters could scarcely have equaled the piles of carcasses strewn across the plains by American and Canadian hunters armed with guns and transported by trains.

The brief period in the latter half of the 19th century when the Bison were being slaughtered wholesale must have been an exciting time for the Turkey Vultures of the plains, as the birds traveled far and wide to take advantage of the remains of the great herds as they were wiped out. In 1846, a frontiersman named Quincy Adams Shaw was traveling the Santa Fe Trail along the Arkansas River, when he and his companions came across a mass of Bison slaughtered by Arapahoe Indians. As the herd that the Arapahos had pilfered was still in the area, the men stayed for four days, randomly shooting the Bison for sport and meat. The party had only left this killing ground a mile behind when Shaw realized that he had left his knife there, and returned to retrieve it. Upon reaching the abandoned camp, he found



literally dozens of wolves prowling about the smouldering fires, while multitudes were roaming over the prairie around. . . . The vultures in great clouds were soaring overhead, and the dead bull near the camp was completely blackened by the flock that alighted upon it; they flapped their broad wings and stretched upwards their crested heads and long, skinny necks, fearing to remain, yet reluctant to leave their disgusting feast.<sup>[129]</sup>

Turkey Vultures were rare in the northwestern state of Montana prior to 1883; but late in that year the birds flew into the eastern Montana by the thousands, because the northern herd of Plains Bison, numbering about one and half million animals, was being methodically slaughtered there by hunters. One observer described thousands of Vultures nesting in cottonwood trees along the Powder River, mentioning that “the stench from these rookeries being so great . . . it was almost impossible to approach.” But the Bison were deliberately killed in unsustainable numbers, and the situation couldn’t last long. After this windfall of carrion was consumed, the Vultures became much rarer in Montana. Four years later, the last Turkey Vulture nesting colony was recorded in the state; by the early 1900s, Vultures were regarded as only accidental and very rare wanderers to Montana.<sup>[130]</sup>

Turkey Vultures have long been familiar to consumers of Western movies and novels for another reason: the imagery of the birds circling over a dying cowboy has proven powerful enough to be repeated ad nauseum. The truth of the cliché that their circling silhouettes were the last things that many dying eyes ever saw is somewhat doubtful; besides, the well-known hesitancy of the “buzzards” when approaching carrion must have comforted many with the thought that, at least, they wouldn’t be attacked by the Vultures while still breathing. Others saw not impending death in airborne vultures, but portents of both good and ill fortune. Common during the warmer seasons, and conspicuous by their size and interest in the leavings of humans, Turkey Vultures were frequent companions of the cowboys, trappers, miners, and bandits who roamed the West, and their companionship was by no means always unwelcome. A specialist in the finding of lost mines named W. M. Longworth described how during such a search,

maybe I’d lay down on the grass, as still as an old rusty lizard asleep, and under my hat watch a buzzard show up and wheel and wheel over me. They say a buzzard waits the will of God. I’d notice which direction the buzzard took off and then scout out that way. I was waiting on the will of God too.<sup>[131]</sup>

Longworth was ready to concede that a “buzzard” might be privy to divine knowledge that remained mysterious to him; but few other Americans would concede even superiority as nebulous as this to the derided and mocked Turkey Vulture. Much as vultures served as evil doppelgangers for eagles in medieval Europe, in the US the Turkey Vulture was popular as an unfavorable comparison for the national symbol, the Bald Eagle. When Henrich Wirz, the only person executed for war crimes after the American Civil War, was condemned to die on the gallows, he reportedly exclaimed, “I’m damned if the Yankee eagle hasn’t turned out to be what I expected, a damned turkey buzzard.”<sup>[132]</sup> It comes as little surprise that by the early 19th century, *buzzard* had become an all-purpose term of denigration; hence Americans called those parts of their cities heavily populated by impoverished people, blacks, or immigrants *Buzzard’s Roosts*,<sup>[133]</sup> and accused people who habitually started arguments of “making buzzard talk.”<sup>[134]</sup> To most Americans, the Turkey Vulture was either a living joke or an embodiment of all that was filthy and profane, depending on the mood of the beholder. In either case, to liken someone or something to a buzzard was a grave insult. Mind you, the behavior of the birds could sometimes be disgusting even to the most charitable observers. In the southern US, some bars installed waist-high rails overlooking gulleys or gutters outside of the barrooms, allowing

drunks something to conveniently prop themselves against while heaving their guts out before they went back inside for another round. These rails were commonly termed *buzzard roosts*. Among southern blacks, there was a popular folktale that an old man once passed out in a such a bar, and was promptly thrown out by the bartender come closing time. When he woke up the next morning, he found himself splayed next to the buzzard roost – and two vultures were perched on his chest, lapping the vomit right off of his shirt. Shouting that the birds were “too soon,” the old man grabbed one of the vultures by the leg, intending to wring its neck – but the bird “done puked his own puke back on him” and escaped unscathed.<sup>[135]</sup> As a result of the experience, the old man swore off liquor for the rest of his life; no word on whether the vultures swore off puke.

The “buzzards” received a raw deal; one would be hard-pressed to name any other bird that is so numerous and widespread in the US, and which fulfills so many vital ecological roles, yet is afforded so little respect. American attitudes towards Turkey Vultures are typified by an anecdote related by Lee S. Crandall, Curator of Birds for the Bronx Zoo during the 1940s. According to Crandall, “Crowded conditions in the Bird House made it necessary for us to put several turkey vultures temporarily in the cage with the bald eagles.” Not more than a week of this commonsense arrangement had passed when the zoo “received a bitter complaint from a representative of a patriotic women’s society, who felt that the dignity of our national bird was outraged by the presence of such ignoble birds as vultures.” The complainant went on to demand the “instant removal” of the vultures; of course, wrote Crandall, “the request was promptly acted upon, and the vultures transferred.”<sup>[136]</sup> Perhaps Crandall should’ve instead pointed out to the lady that the Bald Eagles were hardly likely to be affronted by the Vultures’ presence. Quite the contrary, as Turkey Vultures are welcome sights to wild Eagles, which are often alerted by the Vultures to the presence of the carrion that comprises so much of their diet, and the Eagles would probably enjoy bullying the much smaller Vultures in any case. With the Vultures gone, the captive Eagles would have had to get their kicks by stealing meat from each other, and that sad situation certainly wouldn’t be much of a boost to the national bird’s dignity.

The condors, the “chiefs of the vulture tribe,” were not subjected to such demeaning treatment, but the respect accorded to these giant birds would prove a double-edged sword. Both species of condor, and especially the Andean Condor, were the closest avian equivalent to the big game upon which European and American hunters expended so many bullets in the 19th century. The primary difference was that while a Lion or Grizzly could at least potentially fight back against a hunter, there was very little that a condor could do, except try to escape. But that didn’t stop a Mr. J. R. H. MacFarlane, writing in Richard Lydekker’s *New Natural History* of 1897, from trying to make an adventure out of tying his Dog up and waiting for Andean Condors to come inspect it:

Soon, I perceived that the plaintive noises made by my dog had produced an effect; gradually the condors passed and repassed in their majestic flight, curiosity bringing them each time nearer and nearer, till at last I saw the most inquisitive bird passing within five yards of my retreat, when to drop the lock and deliver the contents of both barrels was the work of a second. To see a heavy bird such as a mallard suddenly drop with a thud, is generally satisfactory, so my feelings may be understood when my raptorial friend plumped down about two hundred feet below, sliding and rolling down the sand of the precipice, at the foot of which I found him lying as dead as a stone.<sup>[137]</sup>

It’s doubtful that Mr. MacFarlane’s “friend” saw the last moments of its potentially half-century-long life in the same jolly light, or felt the same satisfaction as it crumpled and died. But, that’s Condor hunting for you: no more difficult or dangerous than shooting a gigantic, unwary duck, and yet it

rewards the hunter with a trophy that renders even the most splendid drake inconsequential by comparison. No mounted duck has anything on a stuffed Condor with its 10-foot wings outstretched; if only ten feet was enough to brag about, which it evidently wasn't.

The urge to speak of unusually large animals as even bigger than they really are seems nearly universal, and the exaggerations applied to the Andean Condor are exemplary examples of this. Today, few ornithologists would be willing to credit any Condor, dead or alive, with a wingspan greater than ten feet, six inches (3.2 m), which would barely have qualified as an acceptable *minimum* for Condor reports a century or more ago. 19th-century books and newspapers routinely reported Condors that measured 14 or 15 feet (4.3 or 4.6 m) across the wings, and these birds seemed to gain an inch for every mile traveled by their reports. Perhaps the most ridiculous example of these Condor stories appeared in a British publication by the name of *Wesley's Journal* in 1773, which described "a prodigious bird, called a contor . . . above six feet (1.8 m) in height, of the eagle kind, whose wings, expanded, measure twenty-two feet four inches [6.8 m]."<sup>[138]</sup>

While now cut down to a more realistic size, the Andean Condor remains a powerful, almost inescapable presence throughout the Andes. It appears on the coats of arms of no fewer than four South American nations: Colombia, Bolivia, Ecuador, and Chile. The Condor is also the national bird of Peru and Chile, the only vulture anywhere in the world to be accorded that status. In Europe, the fame of the Andean Condor reached the point where the bird was routinely used in art and literature to represent the entire continent of South America. As the Swiss naturalist Johann Jakob von Tschudi put it, by the 19<sup>th</sup> century:

Few animals have attained so universal a celebrity as the condor. That bird was known in Europe, at a period when his native land was numbered among those fabulous regions which are regarded as the scenes of imaginary wonders. The most extravagant accounts of the condor were written and read, and general credence was granted to every story which travellers brought from the fairy land of gold and silver.<sup>[139]</sup>

The real Andean Condor is impressive enough. Its wing area - spread of sail, if you will - is the largest of any living bird, approached only by its North American counterpart and by the biggest pelicans, storks, and Old World vultures. A Condor flying in strong wind sounds remarkably like a jet airplane, as the wind howls through its two-foot (61 cm) long primary feathers. Charles Darwin, who rarely had a kind word to spare for vultures, was unashamed in his admiration for the huge birds as he watched them in Peru:

When the condors are wheeling in a flock round and round any spot, their flight is beautiful. Except when rising from the ground, I do not recollect ever having seen one of these birds flap its wings. Near Lima, I watched several for nearly half an hour, without once taking off my eyes: they moved in large curves, sweeping in circles, descending and ascending without giving a single flap. . . . it is truly wonderful and beautiful to see so great a bird, hour after hour, without any apparent exertion, wheeling and gliding over mountain and river.<sup>[140]</sup>

George Byam, a 19th-century English traveler to South America who vocally subscribed to the European notion that all vultures were filthy, ignoble, and cowardly, was still of the opinion that the Condor "in his wild state . . . is tremendously strong. . . . many times more powerful than any eagle, and drives away the largest dogs that may be engaged on a carcase with the greatest ease."<sup>[141]</sup>





The 18th century French naturalist Georges Louis Leclerc Buffon felt that the Condor presented a taxonomic puzzle, as there was "doubt whether to refer it to the species of the eagle, or to that of the vulture. Its great strength, force, and vivacity, is supposed to give it a claim to rank among the former, while the baldness of its head and neck is thought to degrade it to the latter." Regardless of its classification, he opined that:

If size (for it is by much the largest bird that flies) and strength, combined with rapidity of flight and rapacity, deserve preeminence, no bird can be put in competition with it; for the condor possesses, in a higher degree than the eagle, all the qualities that render it formidable, not only to the feathered kind, but to beasts, and even to man himself. . . .<sup>[142]</sup>

But the very existence of the Condor was problematic for Buffon, as he was a vocal proponent of the notion (popular in Europe at the end of the 18th and beginning of the 19th centuries) that the New World was biologically inferior to the Old; that is, its animals were smaller, weaker, and less impressive.<sup>[143]</sup> Buffon only managed to reconcile this belief with the presence of the peerless Andean Condor in the New World by claiming that although the Condor had *supposedly* been discovered by travelers to the Americas, "it is a matter of much doubt whether its species be confined

to the New World, or have not been described by naturalists of other countries, though under different denominations." He then suggested that a number of mythical Old World birds, including the roc of the *Thousand and One Nights*, "the large bird of Tarnassar, in the East Indies, which is larger than the eagle, and the vulture of Senegal, which carries off children, are probably no other than the bird we have been describing." Furthermore, he averred, "Russia, Lapland, and even Switzerland and Germany, are said to have known this animal" (and no, I don't have the slightest idea what reports he was referring to), although he grudgingly admitted that the Condor was "scarcely ever seen in Europe."<sup>[144]</sup> This certainly isn't the only historical case of someone attempting to arrogate the presence of an impressive-but-foreign animal to their own land, but it must be the only case of a European naturalist attempting to do so with a vulture.

The Andean Condor's reputed predatory habits did much to inflate its popular reputation – sometimes to a frankly absurd extent. An early 19<sup>th</sup>-century book entitled *Natural History of Birds*, intended for use by American schools and churches for the instruction of children, reckoned that God had done mankind a huge favor by banishing the Condor to the faraway Andes:

There is fortunately but one species of this terrible bird. . . . He destroys without distinction any living creature that he can master, and his wings are so large and his strength so great, that it is said he can carry off a sheep, or calf without difficulty. Even men are afraid of his approach, and shun him as they would a

wolf or tiger. . . . Surely, in the history of this terrible bird, we can see the kind provision of a merciful Creator towards man. It produces only two young in a year, while some birds which are harmless and useful, produce thirty or forty young in the same time. The Condor lives only in a certain part of South America, while the birds that are the most beneficial to man inhabit nearly every part of the earth. . . . Were the Condors as numerous as the pigeons, or the swallows, the earth would scarcely afford animals sufficient for their food, and even man himself would not be able to make good his defence against so strong and fierce a bird.<sup>[145]</sup>

Aside from the Black Vulture, the Andean Condor is the only New World vulture which has been much thought of as a predator. Experiments with captive Andeans have demonstrated that these giant vultures definitely possess a killing instinct; but like other New World vultures, Andean Condors lack prehensile feet and piercing talons, and so they must attack prey on the ground with their bills, dependent on size and brute strength to see the attack through to a successful conclusion.<sup>[146]</sup> However, the Condors are huge and extremely strong, and usually if not always go after prey in groups, so the attacks that they do make tend to be very effective. The Condors were considered problematic enough by the imperial Spanish government to be mentioned in official reports; in 1586, a government official sent to the city of Huamanga (now Ayacucho, Peru) explained to the King of Spain the problems with livestock pastures located in the Andes:

[T]here are some large birds that in this country are called condors and are like vultures. These do notable damage among the livestock in general, so that if great care is not taken in watching them when they appear they devour them all. And even when all care is taken, it is found that they eat a third of the animals that are born, especially of the cattle, because they cannot be so well collected as sheep. Thus more Indians to care for the cattle are needed in this province, because there are not any, and the need for this has been discussed and the Governors have been asked to order that each of the Indians give one of these birds in tribute [i.e., kill one] each year so there will be less of them, but until now nothing has been done about this.<sup>[147]</sup>

The Condors' predatory behavior has been most studied with regards to the large mammals of the Andes: domestic Llamas and Alpacas, and wild Guanacos and Vicuñas. Although they're biologically related to the camels of the Old World, these species are ecologically similar to deer or antelope in other parts of the world, as they're herd-living grazers that depend on sociability for survival. None of these animals are under much threat from Andean Condors as adults, but their young may be a different matter. The American biologist Carl Koford, who studied Vicuñas in South America, felt that "direct evidence of killing [by Condors] is generally lacking," and doubted that Condors would attack healthy newborns of large mammals – until he saw a group of five Condors land close by a Vicuña and her young a mere minute or so after it had been born. Soon four more Condors arrived, and some approached to within 2 yards of the newborn Vicuña. Two other female Vicuña (both pregnant themselves) "made short charges at the birds as if to strike them with their forefeet, and they drove one vulture into the air." The Condors behaved aggressively towards the Vicuñas, with one bird swooping very close to the mother. By 20 minutes after the birth, a total of 14 Condors had gathered at the scene; but the young Vicuña was then able to stand on its own, and the Condors appeared to lose interest shortly thereafter, the last two birds departing half an hour after the birth. Koford concluded from this observation that the Condors were only dangerous to the Vicuñas when their newborns were too young to stand and walk; afterwards, the danger was probably minimal. He also observed that adult Vicuñas disliked the close proximity of Condors and chased them off when they landed close to the herds, regardless of whether there were any young present.<sup>[148]</sup>

Adult Llamas and Alpacas also recognize the Condors as predators, and when the vultures approach, they will gather around their young protectively. Modern herders in Peru maintain that Condors will readily attack young Llamas and Alpacas if given the opportunity. Most mortality among livestock from Condor predation is thought to occur from December to May (summer, in the Southern Hemisphere), when young animals are still small, slow, and incapable of self-defense.<sup>[149]</sup> Koford suggested that the seasonal movements of Condors, moving from the seashore in winter to the Andean highlands in summer, was due to the greater supply of food during the latter season, as that's the same time when Llamas and Alpacas give birth to their young.<sup>[150]</sup> Llamas and Alpacas are not defenseless against the vultures, as both species are notorious for spitting at real or perceived threats. This strange habit may have originated in part as a defense against Condors. Not only is a projectile attack the best defense against an airborne predator, but the spit could also potentially foul the feathers of the Condors, making them incapable of flight, and the vultures would quickly learn to avoid such spit-happy animals.

Andean Condors were no less dangerous to the young of the livestock introduced by European settlers: Sheep, Goats, and Cattle. In the early 19<sup>th</sup> century, Giovanni Ignazio Molina wrote that the Condors “frequently attack flocks of sheep or goats”; and that when the Condors went after calves “there are always several of them together, who fly upon the calf with their wings extended, dig out its eyes, and in a few moments tear it in pieces.”<sup>[151]</sup> Traveling among the Cattle-herding vaqueros in the mid-19<sup>th</sup> century, J. M. Gillis wrote that the Condors were the primary concern of these Andean cowboys:

As condors are almost the only enemies to be feared, and their mode of attack is so sudden as to leave little hope of rescue, it is important to be constantly on the alert for them. They never make an attempt singly nor when the cow is near, but, watching for the first moment when she leaves her newly-born calf at a little distance, two or three will pounce upon it suddenly from a mid-heaven flight. One claws out its eyes at a stroke, and, as its mouth is opened in the agony, a second seizes its tongue; and thus its cries are stifled before a single sound could have reached the mother. The sharp eye of the vaquero may have caught a glimpse of the rapid swoop perhaps a mile or more away; yet, what can he do? Long before he could approach sufficiently near, life will be utterly extinct; and the animal being too young for the patron's table, it is scarcely worth his effort to attempt interruption of the dainty banquet. On some estates, and generally during or about the calving season, there is an annual wholesale slaughter of these pests the condors.<sup>[152]</sup>

Defending free-ranging herds against airborne and highly mobile predators is a difficult task. Some Andean herders use slings to defend their herds against Condors and foxes, though a sling need not be loaded with projectiles to be effective; merely swinging it through the air produces a loud humming sound, which may frighten off predators that have learned to associate the sound with danger.<sup>[153]</sup> According to Charles Darwin, the rural people of Chile trained their shepherd Dogs to defend livestock from Condor attacks by running out and “looking upwards to bark violently” when the gigantic birds appeared.<sup>[154]</sup> Some herders even believe that when other food is very scarce, the Condors will attack fully grown livestock, “swooping down upon them with such force as to drive or knock them over cliffs.”<sup>[155]</sup>

If readers are presently experiencing a sense of déjà vu between the Condors of South America and the Lammergeiers of Europe, they aren't alone in this. The first known written description of the Condor described it as *condor-quebrantahuesos ave*, “Condor bone-breaker bird,” likening the Condor to the Lammergeier, known in Spain as *quebrantahuesos*.<sup>[156]</sup> Even into the 19<sup>th</sup> century, some rather



ignorant writers were suggesting that the Condor and the Lammergeier belonged to the same species,<sup>[157]</sup> although there's approximately zero resemblance between the two vultures other than their fearsome reputations. This odd conflation of two vastly different birds was due not to similarities in appearance, but to similarities in habitat – and more particularly in behavior. Like the Lammergeier, the Condor is an enormous, carnivorous mountain-dweller that was thought of as a dangerous threat to animals both wild and domestic. Also like the Lammergeier, the Andean Condor has been accused of attacking people with intent to kill – and occasionally succeeding. In his 16<sup>th</sup>-century account of the dying culture of the Inca Indians, the Spanish chronicler Garcilaso de la Vega mentioned that during a sun festival, some of the Inca attired themselves “with the great wings of the bird called condor, which they considered to be their original ancestor,” and which was “so large that the span of its wings can attain to fourteen or fifteen feet, and so strong that many a Spaniard met death in contest with it.”<sup>[158]</sup> Georges Buffon felt that it was fortunate that there were “but few of the species,” as the Condor was said to “not even abstain from attacking man himself. . . . [and] Spaniards . . . dread its depredations, there having been many instances of its carrying off their children.”<sup>[159]</sup> Some European hunters in the Andes believed that Condors, like fighter pilots, would deliberately fly with the sun at their backs in order to attack their prey while it was unable to see them. A Mr. Whympfer, quoted by Richard Lydekker in his *New Natural History*, described how, when he and his companions

were approached by condors in a menacing manner, we became aware of their presence from their shadows being cast upon us by a nearly vertical sun. They never came near when the sun was concealed, and if they hovered in our neighbourhood they always kept the sun at their backs. . . . and the motive is obvious. The objects to be attacked are dazzled by the sun's rays, while the assailants are enable to inspect their brilliantly-lighted intended victims at their ease, whose eyes are picked out at the earliest opportunity, and are thus rendered completely defenseless.<sup>[160]</sup>

These Condors may actually have learned to hide in the sun for defense, not attack, as the sun would also dazzle the eyes of any hunter attempting to draw a bead on the birds. The distinction was not much appreciated by those on the ground. George Byam wrote that when shooting Condors, “should one or two be knocked over, the others sympathize so much with the sufferers as sometimes to sweep closer to the sportsmen's heads than is comfortable; for I am certain a full-grown condor could split a man's skull with a single blow from his powerful beak, if the man allowed him the opportunity.”<sup>[161]</sup> Reverend J. G. Wood cautioned his readers against engaging a Condor in hand-to-wing combat, as the giant vulture's strength was “really prodigious, a powerful man being no match even for a wounded and tethered bird,” and “a combat of endurance is nearly certain to end in favor of the Condor.”<sup>[162]</sup> I'm sure the participants in the Peruvian Condor-killing festivals would've been surprised to hear that.

To be fair to the Condors, merely being unafraid of people does not automatically make them potential killers of people. Like many other vultures – including California Condors, which have never been plausibly accused of an unprovoked attack on a human – Andean Condors in flight often appear to be curious about people on the ground, and will approach them and loiter overhead. In their book *Chile: Land and Society*, the Americans J. K. Wright and George McBride recalled that

On one occasion while visiting these pasture lands, two of us lay motionless on the ground to see if the giant birds would be interested. One or two which we had seen circling high in the sky soon detected us and descended in wide spirals until they were so close that we could plainly see their eyes and even hear the rush of air through their powerful wings. Other condors saw them and joined in the investigation until sixteen of the birds . . . were circling around close above us. At a movement on our part, they swerved, rose swiftly in giant spirals, and soon were lost to sight over the distant peaks.<sup>[163]</sup>

The boldness of the Condors is bolstered by their lordly place in the local pecking order. Although low-altitude Condors may face serious competition from packs of Black Vultures,<sup>[164]</sup> the next largest scavenging bird in the Andes, the Black-chested Eagle-buzzard, is only about half the size and a third of the weight of an adult Condor, and is not a credible rival. The Condors are also dominant over small mammalian scavengers like foxes, a point that was frequently remarked upon in Amerindian folklore. Nor do the Condors have much competition as potential predators of large mammals; aside from humans and feral Dogs, the only other one in western South America is the Mountain Lion, a solitary, secretive, and largely nocturnal cat which occurs at very low densities. Hence the Condors, particularly those living in the high Andes, have little experience of interspecific competition, and have no reason to be deferential when potential competitors do show up at their food sources. In his book *Travels in Peru*, Johann Jakob von Tschudi recalled that while riding on horseback in the Andes, he stumbled across the a dead Mule, upon which three Andean Condors had already started to feed. The trio of massive vultures was not intimidated by this solitary human interloper:

These kings of the air proudly shook their crowned heads, and darted at me furious glances with their blood-red eyes. Two of them rose on their giant wings, and in narrowing circles hovered threateningly above my head, whilst the third, croaking fiercely, kept guard over the booty. I cocked my gun in readiness for defence, and cautiously rode past the menacing group, without the least desire of further disturbing their banquet.<sup>[165]</sup>

The more plausible accounts of Andean Condors ([right](#)) attacking people mostly involve children. That a fully grown Condor is physically capable of killing a small child is not in question, and if the Condors have an instinctive predilection for attacking the young of large mammals, they *might* sometimes see children as potential prey. Tschudi mentioned that the Peruvian Indians he spoke to quoted “numerous instances of young children having been attacked by condors” – instances which he was willing to believe, because he was involved in one himself in Lima:

I had a condor, which, when he first came into my possession, was very young. To prevent his escape, as soon as he was able to fly, he was fastened by the leg to a chain, to which was attached a piece of iron of about six pounds [2.7 kg] weight. . . . When he was a year and a half old he flew away, with the chain and iron attached to his leg, and perched on the spire of the church of Santo Tomas, whence he was scared away by the carrion hawks. On





alighting in the street, a Negro attempted to catch him for the purpose of bringing him home; upon which he seized the poor creature by the ear, and tore it completely off. He then attacked a child in the street (a negro boy of three years old), threw him on the ground, and knocked him on the head so severely with his beak, that the child died in consequence of the injuries.<sup>[166]</sup>

This Condor had just escaped from a long period in captivity, was thrust into an unfamiliar environment and situation, and had been attacked by both other birds and humans. Therefore, it was probably extremely frightened. It's hardly surprising that the vulture finally reacted to the situation with violence, though unfortunately the worst of that violence was directed against an innocent bystander instead of, say, Tschudi (who was most deserving of it). Tschudi and his Condor apparently faced no serious repercussions for the child's death; he attempted to take the bird back to Europe with him shortly afterwards, but it died during the sea voyage.<sup>[167]</sup> Stories of Andean Condors attacking people have faded from currency in the most of the modern world, but they are still believed in parts of the high Andes. For her 2006 book *Growing Up in a Culture of Respect: Child Rearing in Highland Peru*, the anthropologist Inge Bolin interviewed a Peruvian herder named Teresa, who often encountered Condors in the course of her work. Teresa recalled that at the age of about six:

When I was herding my llamas and alpacas, a condor approached. He was enormous and hovered right over me. He came so close that I felt the air he moved with his wings. I screamed as loud as I could. A woman who walked up the path with her daughter came running toward me. She also screamed, swinging her arms in the air. The huge bird hesitated and then left.

When she heard the story, Teresa's mother believed that the woman had saved Teresa's life. The herders believe that Condors can and will attack children (though not necessarily adults); but also that attacks on children by Condors are comparatively rare, considering how often children and Condors encounter each other.<sup>[168]</sup>

Since the Condors were considered serious threats to livestock and children, the people of the Andes developed specialized methods of killing the birds; two of which were described by Charles Darwin, who witnessed them in Chile. One was to place a carcass inside an enclosure of stakes with an opening for the birds to enter; once they had gorged themselves and were too heavy to take wing without a takeoff run, men on horseback would ride up to the opening, and trap the Condors.<sup>[169]</sup> The American traveler J. M. Gilliss described this in Chile in the mid-19<sup>th</sup> century:

In order to destroy them, usually, a corral or pen is formed of high stakes set in the ground, within which one or more carcasses are placed to entice the birds. Not long afterwards they may be seen flocking from far and near, and they are soon busily engaged pulling the flesh in pieces. . . . they habitually cram themselves until unable to move without disgorging a part of the food, and that their great weight will prevent their rising without a





long preparatory run, which the corral does not allow room for. . . . [Then] peons, armed with clubs and lassos, enter the corral and beat the birds to death. Sometimes this is not accomplished without fierce struggling and occasional bad wounds to the assailants ; but it is rare that a condor escapes ; for if one manages to clear the ground, he will suddenly find a lasso about his neck or leg, and he comes toppling back again.<sup>[170]</sup>

The other method of killing Condors mentioned by Darwin was “to mark the trees in which, frequently to the number of five or six together, they roost, and then at night climb up and noose them.” It would scarcely seem possible to do this without waking the Condors, but Darwin claimed that the birds were such heavy sleepers that it was easy to sneak up on them.<sup>[171]</sup> While visiting Chile in the first decade of the 19<sup>th</sup> century, Giovanni Ignazio Molina described a third method, which was comparatively little-used for obvious reasons:

[The herders] sometimes envelope themselves in the skin of an ox newly slayed, and place themselves on their backs upon the ground; the condor, deceived by the appearance, approaches the supposed dead animal to devour it, when the person within, whose hands are protected by strong gloves, dexterously seized the legs of the bird, and holds it until his companions, concealed hard by, run up to his assistance, and dispatch it with clubs.<sup>[172]</sup>

Johann Jakob von Tschudi wrote that in the 19<sup>th</sup> century, people “seldom attempt to shoot the condor,” as it was popularly believed that its tough plumage made it all but immune to musket balls; instead they attempted to kill Condors with heavy stones flung from slings, or immobilized the birds with bolas before dispatching them.<sup>[173]</sup> Some herders in Peru and Colombia adopted a less violent, yet surprisingly effective deterrent: they simply tied leashes around the necks of young animals when they were left to roam. The Condors, perhaps suspecting a trap, refused to go anywhere near them.<sup>[174]</sup> Condors caught by any method were usually killed on the spot, but not always; at Valparaiso during Darwin’s visit, a live Condor could be bought for as little as six British pence, or more commonly for eight or ten shillings. A garden in Valparaiso served as a refuge for between 20 and 30 Condors, “fed only once a week” but seemingly in good health. The Chileans told Darwin that a Condor could live for five to six weeks without eating.<sup>[175]</sup>

The most serious and focused persecution of Andean Condors wasn’t because of attacks on people or livestock, but because of attacks by the vultures on seabirds - because said seabirds were viewed as a detriment to a vital part of Peru’s economy. The islands off the western coast of Peru harbored vast breeding colonies of seabirds, whose accumulated guano proved to be an extremely valuable source of fertilizer; in his book *Bird Islands of Peru*, Robert Murphy claimed that it was “more than thirty-three times as effective as farmyard manure.”<sup>[176]</sup> Native Peruvians had known of the value of guano, and the birds that produced it, for centuries, but it didn’t come to the attention of the larger world until the 1840s. After that, hundreds of thousands of tons of seabird excrement were extracted and sold every year, with no thought of the possibility that the supply might be exhausted. The seabirds that produced the valuable fertilizer were harassed, driven away, and slaughtered; and soon enough, the guano deposits were running low.<sup>[177]</sup>

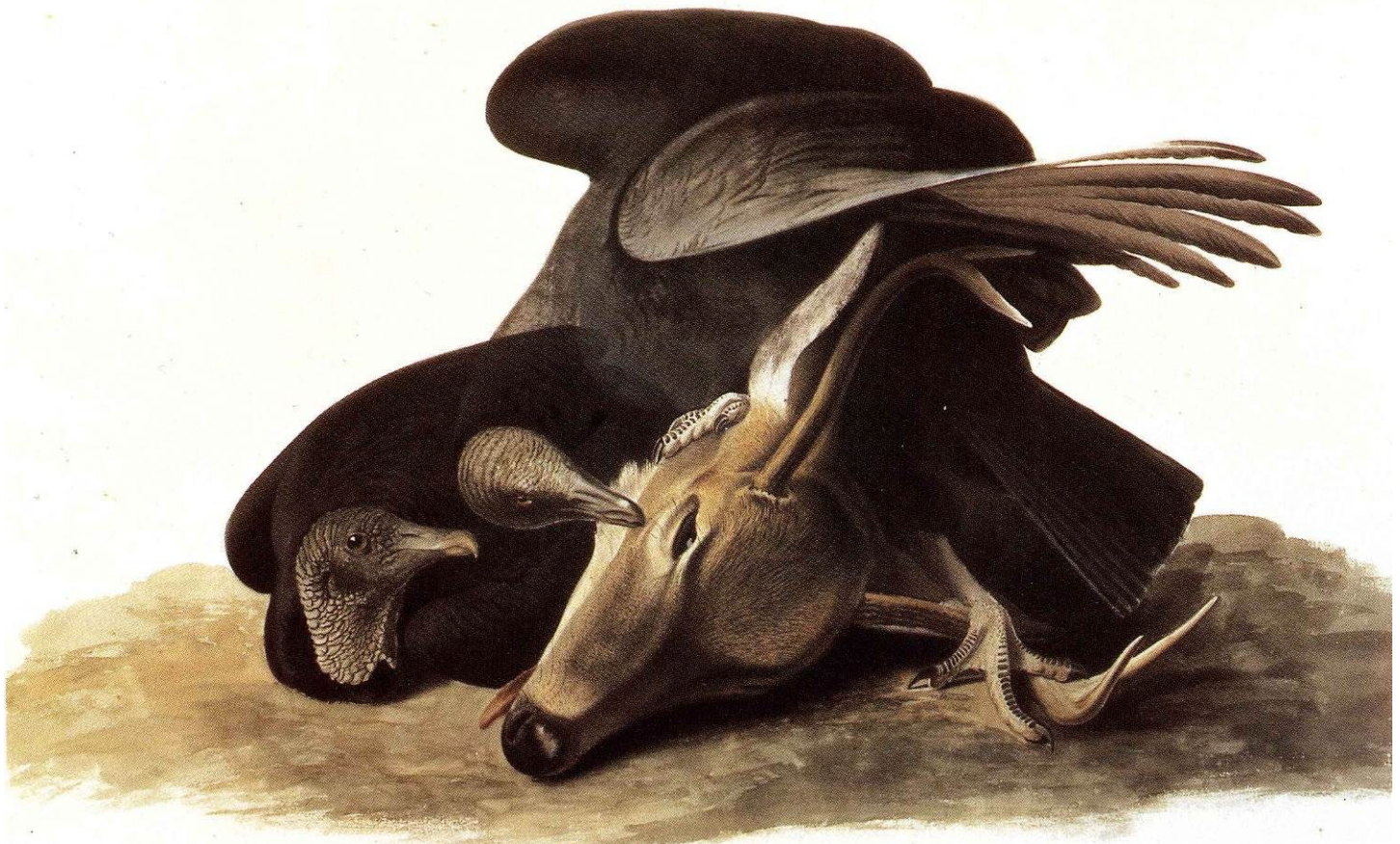
Early in the 20th century, the Peruvian government realized the dire economic straits it would be thrust into if the guano supply was exhausted, and embarked on a program to protect the seabirds on their breeding islands to ensure a steady supply. Unfortunately, the program also included provisions for “controlling” predators of the guano-producing birds, particularly Andean Condors, by employing sharpshooters for the purpose of, as Murphy put it, “slaughtering as many as possible.”<sup>[178]</sup> This persecution was considered fully justified because

along the coast of Peru, the condor and the [Turkey] vulture are true birds of prey as well as scavengers. The fresh wings and still bloody breast bones of diving petrels, which were strewn all over the mountain, indicated that these unfortunate creatures contributed substantially to the condor's food. Gigantic footprints, reminding one of a dinosaur rather than a bird, were, moreover, impressed all over the petrel breeding grounds, showing where the condors had walked from one burrow to another, as if to sit, ogre-like, and await the exit of an unsuspecting victim.<sup>[179]</sup>

Considering the sheer numbers of the seabirds, actual predation by Condors and other predators was insignificant in its effect; the Condors were as ineffective at limiting seabird numbers as Serengeti Lions are at limiting the numbers of Wildebeest. But the mere appearance of the Condors aroused such panic in the seabirds that hundreds of them would desert their eggs and nests for the entire breeding season, substantially denting the numbers of the next generation.<sup>[180]</sup> This especially applied if the Condors appeared in numbers; one of the Peruvian government's official condor killers informed Murphy that he had once seen three dozen Condors descend upon a single colony simultaneously. Murphy claimed that a nesting area covering several acres, used by "probably tens of thousands" of birds, could be and sometimes was vacated due to Condor attacks,<sup>[181]</sup> and condoned the killing of Condors ("vermin") by saying:

If it be asked how the balance between guano birds and vermin regulated itself in ancient times, when gulls and condors presumably enjoyed unrestricted banquets, the answer is simply that the cormorants, piqueros, and pelicans could, in that pristine period, well endure such a process of elimination. Man has since upset the scheme of nature so seriously that he must, for the present at least, vigilantly apply a system of more or less artificial nature.<sup>[182]</sup>

Get used to that particular line of logic; you're going to hear it a lot in the coming years – though not in reference to the Condors, as their "regulation" was banned by the Peruvian government in 1970.<sup>[183]</sup> Further north, in Ecuador, Andean Condors are now seen only in mountains and in sparsely populated agricultural land. The birds rarely even fly over more heavily peopled areas, having learned to fear them. As everywhere else in South America, in Ecuador the Andean Condor's decline appears to be almost entirely due to direct and deliberate persecution: shooting, and especially poisoning. After seeing Condors eating dead livestock, or even afterbirths, many rural Ecuadorians jump to the conclusion that the Condors are a real danger to living animals; a supposition which the traditional belief in Condors as predators does nothing to dispel. Due to continued persecution, Condors are no longer found in many mountainous areas that would seem to be ideal habitat for them, and occur only in scattered, small populations from Ecuador northward.<sup>[184]</sup>



It seems that all of the New World vultures are capable of killing live prey, even if, as in the case of the California Condor, the only concrete evidence for it is found in the form of video footage of captive birds striking down intruding rats with their bills.<sup>[185]</sup> Still, even with the inclusion of the Andean Condor, it's fair to say that there is no family of carnivorous birds in which predatory instincts are more undeveloped and unutilized than that of the New World vultures. But among this rather unaggressive and definitely not very predatory group of birds, there is one black sheep, or rather, Black Vulture, that doesn't play by the rules. Despite its vulgar name, the "Carrion Crow" ([above](#)) is undisputed in its predatory prowess among the New World vultures. When this species ventures out for a hunt, it goes in groups, typically numbering from 20 to 60 birds (possibly comprising the same family associations that also forage for carrion together);<sup>[186]</sup> and, based on the reports that are available, it appears that the Vulture packs are versatile, ambitious, and frequently successful in their predatory forays. The birds have been seen or suspected to attack a number of wild animals, including snakes and deer fawns; and there are eyewitness accounts of the vultures surrounding apparently healthy adult skunks and tearing them to pieces - the skunks' primary defense, their noxious spray, is useless against predators with no sense of smell - and similarly dispatching Opossums.<sup>[187]</sup>

Domestic animals are the most notorious prey of the birds. Black Vultures have been accused of attacking creatures ranging from Domestic Cats and Turkeys to Cattle, Goats, and Horses, though it's usually only the young of the larger animals that are targeted. When going after large mammals, the Vultures typically first peck out the eyes, and then tear into the abdominal cavity through the rectum or genitals. Adult cows giving birth sometimes come under assault with these tactics, although such large animals are more likely to be wounded rather than killed outright by the vultures.<sup>[188]</sup> Rather more worryingly for suburbanites, Black Vultures have also been known to prey



on Dogs and Cats, although such incidents are far more poorly documented than livestock attacks. Dogs that are tethered near regular vulture roosts seem to be especially vulnerable to attack,<sup>[189]</sup> which likely explains the bizarre 2004 case of a large group of Florida Black Vultures attacking and killing a tethered pit bull terrier.<sup>[190]</sup> Even free-ranging Cats may be in danger; for although the felines recognize Black Vultures as dangerous and seek cover in shrubs when the birds approach, they also tend to freeze when the vultures encircle or corner them, which is exactly the wrong tactic to wield against a vulture attack.<sup>[191]</sup>

By the 1930s, Black Vultures were considered enough of a threat to livestock that the United States Biological Survey officially recommended that the birds be killed in areas where “through their predatory habits and concentrated numbers, both turkey buzzards and black vultures have become a menace to new-born pigs, calves, lambs, and kids.”<sup>[192]</sup> Despite its inclusion in that statement, the Turkey Vulture is generally thought of as a docile, inoffensive bird. There appear to be no recent credible reports of Turkey Vultures killing, or even injuring, domestic animals in the US, nor have they been known to deliberately damage inanimate property as have their more pugnacious Black cousins.<sup>[193]</sup> Even people who utterly despise Black Vultures due to adverse experiences with them are often indifferent to the Turkeys, at least when they can tell the difference between the two species. This opinion seems to be shared by many other American animals as well; aggressive raptors like Red-tailed Hawks will readily attack other birds of prey that pass through their territories, from Kestrels to eagles, but they almost always ignore Turkey Vultures. Small animals that ordinarily take cover at the approach of large soaring birds are often rather blasé about the vultures; in fact, one species of raptor, the Zone-tailed Hawk, looks and flies remarkably like a Turkey Vulture, and the hawk may actually keep company with Vultures in order to deceive its prey into thinking that it is harmless. Turkey Vultures will rarely attack live prey, usually animals that are sickly, badly injured, or entirely immobile; and in some areas, these vultures are notorious for robbing traps of small mammals and birds. In most of the mainland Americas, Turkey Vultures must face competition from Black Vultures, and so they may have fewer opportunities to kill prey than the more numerous and aggressive Blacks.

This isn't the case in the Falkland Islands, where Black Vultures are absent. The Turkey Vulture population there is thought to have increased substantially since Charles Darwin saw it in the 1830s, although Sheep farmers had a price on the Turkey Vulture's head for most of the 20th century due to its reputation for killing Sheep. The stories went that the Vultures would tear out the eyes and tongues of fallen Sheep, and even tear holes in the belly to begin feeding while the unfortunate ovines were still alive. Ornithologists who studied the problem concluded that the Vultures would only attack Sheep if they were too weak to kick, by which point the presence or absence of the scavengers would make little difference to the mammals' ultimate fate. The same Sheep-farming industry that so detests the Vulture has only itself to blame for the bird's success; culled Sheep are the Turkeys' primary source of food on the islands, now that breeding colonies of seals have been wiped out.<sup>[194]</sup>

Although such incidents colored views of vultures, and not for the better, none were as damaging to the birds as the widespread and long-lasting claim that they spread fatal diseases among livestock. When it became widely known towards the end of the 19th century that diseases were caused by microbes, vultures were among the first animals to be fingered as potential germ-carriers. After all, their eating habits seemed extremely indiscriminate, and they certainly had no qualms about eating animals that had died of fatal diseases. In particular, the spread of three much-feared livestock diseases - anthrax, botulism, and hog cholera - was pinned on the vultures, and was commonly cited by farmers and ranchers as valid reasons for killing the birds. It was believed that

vultures could spread these illnesses through their excrement, or merely by carrying the germs from place to place on their bodies. A 1913 article in the journal *Auk* noted that as a result of the "wide currency" of such beliefs in the southern US, the Turkey Vulture "therefore has been threatened with persecution in the land where heretofore it has received the most zealous protection."<sup>[195]</sup>

And yet, beliefs that vultures could spread disease appear to have been essentially nonexistent in the pre-Columbian New World, and even in the perpetually disease-ridden Old World until the mid-19th century, when Louis Pasteur discovered that microbes caused certain illnesses. The Amerindian Cherokee people were so impressed by the Turkey Vulture's apparent invulnerability to illness that they believed anyone who drank its blood would be granted temporary immunity from all diseases, and a dead Turkey Vulture hung outside of a home was thought to grant similar protection to the occupants.<sup>[196]</sup> Although vultures were believed to herald the imminent arrival of plague outbreaks in some areas of medieval Europe, no one seems to have thought that the birds played any role in spreading the disease (a subtle distinction, admittedly). It now appears that the pre-19th century traditions were correct; there is virtually no evidence that vultures spread disease to either livestock or humans, and plenty of evidence that they actually restrict its spread. The digestive systems of vultures are highly acidic and are specially adapted to destroy viruses and bacteria that are ingested with food; after all, it wouldn't do for the birds to fall ill every time they ate rotting meat. It may be more likely that diseases could be spread by infected material adhering to the feet and feathers of the birds; but there's no hard evidence for this either, and since those surfaces are both washed frequently and exposed to a steady bombardment of microbe-killing ultraviolet rays of sunlight, it's difficult to believe that such transmission could be much of a problem.

Despite the rumors, it was realized quite early that cholera found no safe haven in the bodies of vultures. In Florida, the Annual Report of the State Board of Health for 1914 definitively stated that "the virus of hog cholera is digested in the intestinal tract of buzzards and the droppings of buzzards fed on the flesh of hogs dead from cholera do not produce cholera when mixed in the feed of hogs."<sup>[197]</sup> A 1932 publication of the United States Biological Survey discouraged killing of Turkey Vultures and Black Vultures for the purpose of disease control, mentioning that although they

have been accused of being important carriers of livestock diseases . . . skilled investigators have shown that the virus of charbon, or anthrax, is destroyed in passing through the digestive tract of the turkey buzzard. There also are on record similar data regarding the virus of hog cholera.

The report added that official experiments had "indicated that the transmission of hog cholera on the feet or feathers of birds is by no means so likely to occur as is generally supposed."<sup>[198]</sup> Experimentation has also proven that Turkey Vultures don't harbor botulism bacteria; indeed, their immune systems are highly resistant to all types of it, even if it is injected directly into the bloodstream.<sup>[199]</sup>

More durable is the belief that vultures can spread the dreaded disease of anthrax; or, more precisely, that they can spread the spores that anthrax bacteria produce under certain conditions. This misconception seems to stem in large part from an article published in a private Chilean veterinary journal in 1942, rather unobjectively entitled "*Los Jotes, simbolo de Atraso, Infección y Mugre*" ("The Vultures, symbols of Backwardness, Infection, and Filth"). In the article, one Dr. Schmidt claims that he took excrement from vultures that had been feeding on Sheep killed by anthrax, heated it to 90° Celsius (194° Fahrenheit) to destroy the germs (an unnecessary expedient, as any free germs had already been destroyed in the vultures' digestive systems), and then had the waste matter "sown on different types of cultural media. The following day typical colonies of Anthrax microbes appeared." Dr. Schmidt then injected these microbes into several different domestic animals, which of course all

died from anthrax.<sup>[200]</sup> I'm sure that any professional microbiologist could poke so many holes in Dr. Schmidt's work that it would collapse under its own weight, but even I can point out that there are two fatal flaws in his conclusion that vultures spread anthrax. One, even if we accept that anthrax spores can survive passage through a vulture's digestive system, since these spores are only produced when anthrax bacteria is exposed to the air (and not always even then), vultures are much more likely to restrict the disease than to spread it, by consuming and destroying the bacteria before they can produce spores.<sup>[201]</sup> Studies of anthrax spores have demonstrated that they can remain viable in ecosystems for years and are virtually indestructible by any means. It follows the best defense against them would be to prevent the bacteria from producing spores in the first place; and the best way to do that is to either destroy anthrax-afflicted carcasses entirely, by incinerating them; remove the possibility of transmission, by burying them; or, failing those options, to leave such carcasses to the scavengers that can consume them most quickly, cleanly, and efficiently, the vultures. The second flaw in Dr. Schmidt's conclusions is that his conjecture of vultures spreading the disease was based on an *injection* of the anthrax that the spores had produced, rather than upon any mode of contraction (inhalation, for instance) that was likely to happen outside of a laboratory. Concluding that vultures can spread anthrax as a result of such an experiment is rather like injecting a lab animal with the saliva of a rabid dog, and then attempting to use that injection as proof that rabies can be spread by doggie chew toys.

Unfortunately, the farmers who had asked Dr. Schmidt to figure out why their Sheep were dying accepted his poorly concocted experiment and its conclusions as fact; and their previously benevolent attitudes towards the birds abruptly became hostile. The administrator of the farm began offering a peso apiece for any vulture heads brought to him by his workers; and some of the neighboring farms, upon learning of the veterinarian's conclusions, also decided that they must kill the vultures before they could spread any more disease.<sup>[202]</sup> To this day, the article is still occasionally cited as evidence that vultures spread disease among livestock. Other doctors and scientists who experimented with vultures and anthrax came to very different conclusions. A 1912 study published by Panamanian veterinarians concluded that "pastures and other locations cannot be infected by buzzards through the agency of droppings, but require more intimate contact," and pointed out that "the other possible mode [of transmission] requiring actual bodily contact of the buzzards with livestock is not likely to be in operation often."<sup>[203]</sup> In an investigation during the same year by a Dr. Harry Morris working for the Louisiana Agricultural Experiment Station, several captive vultures were fed on anthrax-infested meat, then killed and dissected. The results were that "no anthrax was found in the posterior part of the digestive tract, none being found beyond the stomach, and but little in that organ. These experiments show quite conclusively that the anthrax bacteria do not pass through the digestive tract of the buzzard and consequently are not disseminated in the droppings of scavengers." Morris noted that bacilli could remain alive on the bills and feet of the bird for two days, and suggested that water and pasturage might be contaminated by contact, though such duration of survival would be less likely in the wild than in captivity.

Morris reached the conclusion "that the buzzard has much the best record of any of the carrion feeders studies, as it is the only one that does not distribute anthrax bacilli in its feces." Domestic animals far more likely than vultures to come into direct contact with livestock, such as Cats, Dogs, and Chickens, could spread anthrax via their excrement, and these were also more likely to contaminate water or pasturage than were the vultures. Wrote Morris, "It seems evident therefore that at the same time that steps are being taken to greatly reduce or exterminate a wild bird the buzzard which may possibly play a minor part in the transmission of anthrax, farmers are harboring several



domestic animals that have far greater possibilities as spreaders of the disease." He also suggested another culprit for anthrax outbreaks among livestock: carrion-eating flies, because "often carcasses are allowed to remain where the animals die, and in these cases the flies eat on the anthrax material, spreading the infection over considerable areas. . . . The fact that the disease may be carried by flies is more than sufficient to explain the most severe epidemics."<sup>[204]</sup> He concluded with an urge for farmers to bury livestock, instead of leaving them for scavengers. Today, it's widely agreed among scientists and veterinarians that there is no substantial evidence that vultures are significant vectors of disease – not that that's stopped certain writers, such as Michael Crichton in *The Andromeda Strain*, from portraying the birds as "a vector for infectious spread" that could justifiably be slaughtered in the event of a pandemic. Even today, many farmers and ranchers throughout the world firmly believe that vultures carry diseases and will communicate them to livestock if given the opportunity, and the issue remains a serious concern for people attempting to protect the birds.

By the beginning of the 20th century, American cities were becoming unwelcome places for vultures. Increasingly efficient sanitation systems coupled with ordinances banning free-running livestock made the birds' services unnecessary, and their presence unwanted. The myth that vultures spread disease did little to help their cause; and as legal protection for the birds was ended, anyone with a gun was free to take potshots at any vulture that crossed their path. The birds couldn't be blamed if they chose to abandon the cities for the countryside; and so they did. Even Charleston lost its famed urban vultures, which gradually vacated the city throughout the first half of the 20th century – although some of the folklore surrounding the presence of the birds has outlasted them. But the best-documented example of vultures abandoning an urban habitat hails not from the US, but from Veracruz in Mexico.

On US President Woodrow Wilson's orders, that city was occupied by the American Navy and Marines for about seven months in 1914. The official reason for the occupation of Mexico's most important port was that, in Wilson's words, "the government of the United States was being singled out . . . for slights and affronts for its refusal to recognize General [Victoriano] Huerta . . . as provisional president of the Republic of Mexico"—though it's more likely that Wilson simply felt that Huerta, whom he openly despised, wasn't behaving with adequate sycophancy towards his powerful northern neighbor.<sup>[205]</sup> After a landing and desultory battle on April 21, the Americans set up a provisional military government and attempted to clean up Veracruz according to their own standards. For the Americans, the public market was the most disgusting place in a city rife with them; after inspecting the place, and witnessing the butchers' habit of tossing scraps of meat on the ground for the resident *Zopilotes* (Black Vultures) and Dogs, the Major who had been placed in charge of the Department of Public Works reported to his commander that, "It was almost unbearable for a white person to remain in the vicinity of the market." Such attitudes reveal selective memory at work, as the parents of many of the sailors and marines had happily shopped in similar vulture-inhabited markets in the Southern US just a few decades earlier. This was the second time Americans had invaded the city; the first time around, during the Mexican-American War of 1846-48, Americans also noted the *Zopilotes* in their memoirs,<sup>[206]</sup> but apparently took no offense to their presence and certainly made no great efforts to sanitize Veracruz.

Regardless, no nostalgia for those conditions was evinced by the military government, which did its best to ensure that the Vultures and other "vermin" would become unwelcome in Veracruz. Public spaces were swept out, rubbish and scraps were burned, and the entire city was flushed out with seawater from a fireboat every night. The Americans patted themselves on the back for their hygienic efforts (and continued to do so after the occupation ended); although some of their methods, like

dumping crude oil into pools and ditches to kill malarial mosquitoes and burning sulfur to fumigate buildings, likely had long-term health consequences of their own. The effects of the invaders on the city's *Zopilotes* were immediately noticeable. Rather than their normal habits of perching in the vicinity of the market or other dependable feeding spots, the Vultures spent most of the daylight hours roaming around the city on the wing, looking for food. After a month of the enforced sterilization, most of the Vultures had departed Veracruz, though where they went afterwards is unknown. (Quite possibly they simply moved to other towns where the old standards of cleanliness still prevailed.) The presence of so many bored, armed men probably aided them on their way; it certainly would've been surprising if the Americans didn't take occasional potshots at the birds.

The Vultures that did stay evidently became more active and aggressive in procuring what little food remained. In May, a newspaper reporter witnessed a strange incident in which a Mexican street-cleaner (employed by the Americans, of course) was approached by a *Zopilote* as he was emptying a garbage can. With the can and its contents uncovered, the bold bird swooped directly into it; then, as the cleaner attempted to drive it off with the lid he was holding, the Vulture attacked him, inflicting a sound thrashing on the unfortunate man with its wings and feet before departing. Upon questioning the street-cleaner about this confrontation, the reporter found that the man blamed the Americans, not the Vultures: "That is because of the *Americanos*. The *teniente* [lieutenant] is the devil of a master who makes us work night and day to clean the city, so that the unlucky birds of Veracruz go hungry." Instead of peaceably waiting for food to present itself, the *Zopilotes* now had to adopt a more disruptive approach to feed themselves; for this, as for other reasons, the street-cleaner simply "could not understand the *Americanos*."<sup>[207]</sup> The primary difference between the vultures' situation in the cities of the southern US and in Veracruz was that, in the latter case, the scavengers' absence proved to be only temporary. General Huerta resigned his presidency on July 15; and, in lieu of any solid excuses to continue the occupation indefinitely, the Americans evacuated Veracruz five months later. The Black Vultures made their way back to the city, and soon enough the *Zopilotes* were again a common sight in their old haunts. By the end of the year, a naïve observer would've been hard-pressed to deduce that anything had ever changed for Veracruz or its vultures.<sup>[208]</sup>

The vultures of the heavily industrialized eastern US have also displayed more than a few tricks for accommodating changing human attitudes. Despite increasingly sterile urban planning, heedless of machinery and toxic chemicals, and flying in the face of rampant gunplay and general disdain, the Eastern vultures have been increasing their numbers; and, almost alone among the world's vultures, are venturing into new areas *without* any deliberate help from humans, especially in the Northeast. Recorded sightings of the birds since the early 20th century show that both the Turkey and Black Vultures have been steadily moving north. In the 1930s, the Black Vulture's breeding range on the east coast extended no further north than central Virginia. The birds apparently started to move north in the 1940s, with the first recorded nesting in Maryland noted in the late 40s. By the mid-1950s, Black Vultures old and young could be seen throughout Maryland and most of Delaware, and successful breeding of the species in Pennsylvania was reported in 1952. The Vultures nested in New Jersey by 1981, and sightings in that state increased steadily through the 80s. Connecticut reported more spring records of Black Vultures in the 1980s than in any previous decade.<sup>[209]</sup>

Turkey Vultures have similarly expanded their range, even further north than the Black Vultures. In the 1910s, the species was considered only a summer visitor to the warmer parts of New York State, and had never been known to breed there. A pair was found nesting in New York in 1925; Turkey Vultures then made what has been described as a "phenomenal advance" throughout the state, and then through the entire northeastern US. Turkey Vultures successfully bred by 1930 in

Connecticut, by 1954 in Massachusetts, by 1981 in New Hampshire, and by 1982 in Maine. The numbers of spring migrants that passed Braddock Bay near Rochester, New York tripled in the 1980s.<sup>[210]</sup> Southern Canada experienced a vulture windfall at about the same time; Turkey Vultures were seen nesting in Ontario by 1901, and the Canadian population as a whole has become more numerous since the 1950s, with many vultures moving as far west as Alberta and east into Quebec.<sup>[211]</sup> Although most of this expansion has been taking place east of the Mississippi, the Black Vulture has also been quietly moving into new areas in the western US and in northern Mexico. The species is suspected to be a new arrival in the Mexican state of Sonora, as early explorers never reported the presence of *Zopilotes* there. By the early 1960s, the resourceful Vultures had spread northwards as far as Arizona,<sup>[212]</sup> where they have since become a common sight, and the species now appears to be approaching New Mexico from the west, south, and east.<sup>[213]</sup> Similar expansion has taken place in the Patagonia region of South America, where newly arrived hordes of Black Vultures are offering serious competition even to the mighty Andean Condor.<sup>[214]</sup>

The reasons behind the surprising spread of the Turkey and Black Vultures throughout the Americas are by no means entirely explained, but there is general agreement that two of the primary factors are a warming climate and an abundance of roadkill.<sup>[215]</sup> The prospect of shorter, milder winters is obviously pleasing to a warmth-loving bird like the Turkey Vulture. Not only is the breeding season lengthened, but carrion tends to soften and rot more quickly as temperatures rise; a welcome prospect for a scavenger that finds much of its food by scent, and is often unable to open fresh carcasses. And the agent largely responsible for this warming climate is, from a vulturine point of view, a near-ideal predator. Cars kill animals of all varieties and sizes in great numbers, and this mortality takes place along predictable and easily located routes. The cars never eat what they kill (although, occasionally, their occupants might), and their victims are usually left in a state of disintegration, with no troublesome intact hide that must be breached before the meal commences. More unscrupulous drivers and passengers may even drop their garbage along roadsides, a practice said to be a great help to Black Vultures in Ecuador.<sup>[216]</sup> The one great disadvantage of roadkill is that the auto's indiscriminate nature ensures that any scavengers feeding along its trails are fair game as well. The threat of being run over is a much more serious concern for vultures than for smaller, lightweight scavengers like crows and magpies that can flit into the air at a moment's notice. More unsuited to flapping their wings quickly than Black Vultures, Turkey Vultures find it more difficult to take off in the absence of wind and so are at a greater risk of being hit by cars.<sup>[217]</sup> However, Turkey Vultures eating small carcasses on roads will sometimes pick them up and fly away with them when a car approaches, having learned to vacate the table when the chef arrives.

As profitable as this range expansion has been for both species, the vultures were still venturing into unknown territory, which in some cases were populated by people that possessed no traditions of tolerance or protection for winged scavengers. The results in the northeastern US were predictable; in 1927, Edward Forbush lamented that the Turkey Vulture would probably be much more common in New England "were it not for the fact that the moment one appears, several ignoramuses are likely to take after it with guns. . . . there are so many people who are anxious to kill anything large enough to serve as a target that the poor vulture has small chance for life."<sup>[218]</sup> The vultures enjoyed better odds in the cities of Latin America, where guns were fewer, temperatures higher, and standards of sanitation laxer. As the cities of the southern United States were giving a cold shoulder to their avian scavenger crews, the urban areas of Mexico and all points southward were growing quickly, often too fast for sanitation systems to keep pace. Black Vultures found welcome homes in many Latin American cities; even the biggest burg in South America, São Paulo, has a



resident Vulture population that feeds at its garbage dumps and nests on its skyscrapers.<sup>[219]</sup> In Central and South America, the Black Vultures is now a primarily urban species, seldom seen in numbers except near settlements of at least several thousand people.<sup>[220]</sup> In and around those settlements, the birds can be seen feeding in the streets, in garbage dumps, and around slaughterhouses.<sup>[221]</sup> These enterprising vultures do their jobs very thoroughly; in Panama, it's said that the dumps where Black Vultures regularly feed are entirely free of rats and flies, as those smaller scavengers can find no food after the birds have finished their rounds.<sup>[222]</sup> Attitudes towards these civil Vultures among the people who share their settlements with them are quite similar to those of 19th century Americans towards their birds, though with more of a Latin emotional touch. Richard French wrote that the people of Trinidad, one of the few islands inhabited by Black Vultures, regard the *Corbeaus* with "mixed feelings of respect and disgust," and the Trinidadian government allowed unrestricted shooting of the birds during an annual open season, apparently to allow those annoyed by the Vultures let off some steam without having to resort to mass poisonings. The offenses committed by the *Corbeaus* included attacking Chickens in poultry runs, trying to steal the catches of fishermen as they unloaded their boats on the beaches, and leaving rooftops caked with excrement; generally, though, they were regarded as useful scavengers of garbage and roadkill, and left alone. Around kitchen drains, they sometimes behaved as tame as Chickens, allowing people to walk among them without concern.<sup>[223]</sup>

Compared to these confiding birds, the vultures of the tropical forests that still cover much of Central and South America are little known or studied. This lack of knowledge is unfortunate, because the vultures of the deep woods undoubtedly represent a truer picture of what their pre-Columbian (and pre-humans of any kind) ancestors were like than do their civil counterparts. Frank Chapman wrote in defense of the vultures of Barro Colorado Island in Panama, lest anyone think they could be regarded with the same familiar contempt as the city vultures:

These Buzzards of the forest are as different from those of the town and slaughter-house as a wild Mallard is from a puddle Duck. They are not surfeited with offal to be had for the taking. They are not so accustomed to man that one must almost kick them from his path to avoid stepping on them. They are hunters. It is true that they must be called "dead-game sports." It is also true that in the forest it is more difficult to detect game dead than alive. A Hawk's prey moves, calls, roams over more or less territory. He has only to wait in its haunts and sooner or later it will come to him. A Buzzard's prey is as motionless and silent as the grave in which it lies.<sup>[224]</sup>

In this habitat, Black Vultures have a severe competitive handicap compared with the Turkey and Yellow-headed Vultures, which can find food under the forest canopy with their senses of smell. Black Vultures are ordinarily as rare in forested, unsettled regions as they are common in urban areas. Before significant human settlement of the Latin American forests, it seems that the Blacks were largely restricted to the vicinity of rivers, lakes, and swamps, the only areas where the noseless birds could find adequate food. Humanity has paved the way for vulturine expansion in the forests as well; as soon as a section of forest is cleared and human activities (especially garbage dumping) start to take place regularly, the numbers of local Black Vultures take an immediate leap.<sup>[225]</sup>

Whatever one thinks of the Black Vulture's appearance, or its eating and hunting habits, it's difficult not to admire the success that it has had in the post-Columbian world. It can kill or scavenge, it can congregate in thousands or hunt in small family groups, it can nest in an untouched forest or on a South American skyscraper; it can even see well, fly, and eat carrion at night.<sup>[226]</sup> It's a super-bird, one of only four vulture species, and a select group of other animals, that are likely to become more numerous as humans do the same. After comparing its present status to that of larger, rarer birds like

the condors or the King Vulture, it's easily to understand why the paleontologist Loye Miller dubbed it "the lusty and aggressive youngster" of the New World vulture family.<sup>[227]</sup> Still, it's unfortunate that its success in Latin America rides on the decline of the forest vultures, especially the King Vulture, a bird that appears to hail from an alternate universe where carrion birds are routinely garbed in hues of Technicolor brilliance. Like some other colorful New World birds, the King Vulture had a [brief period of great popularity](#) in the old continent, especially with painters, when it was first imported to Europe during the early 18th century.<sup>[228]</sup> Its impact there was such that it was one of the three New World vultures to be described by the naturalist Carl Linnaeus in his landmark book *Systema Naturae* of 1758, the only other two being the much better known Turkey Vulture and Andean Condor. Everything about the King Vulture seems intended to draw attention to the bird, even its abrupt and sometimes noisy arrivals at carcasses. The ornithologist Alexander Wetmore wrote that when the *rey gallinazos* of Panama found food, they would "sometimes descend from high in the air with great rapidity, and a roaring of wings that may be startling, particularly in heavy forest where the view of the sky is cut off by the high tree crown."<sup>[229]</sup>

Any smaller vultures already present at a carcass make way when a King arrives; even a horde of frenzied Black Vultures will usually make way for the rainbow-headed bird. There are many folk beliefs surrounding the atypically colorful Kings and their dominance over other birds. As Charles Empson put it in his *Narratives of South America*, "the prevailing belief is, that to every party of those vultures there is a chief; and that when such a banquet as a dead mule, or any other large animal is discovered, the birds hasten to their superior, and conduct him to the prize, patiently attending, and apparently keeping guard, until he has gorged sufficiently."<sup>[230]</sup> Many 19<sup>th</sup>-century ornithologists doubted claims that a single King Vulture, only slightly larger (though a good deal heavier) than a Turkey or Black Vulture, could dominate a whole mob of the latter birds. When journeying in Peru in the 1840s, the British explorer George Byam desired to see for himself "the extraordinary respect, fear, or whatever it may be called, shewn by the commoner species of vulture to the king of the vultures." He thus attempted to attract a King with a dead mule hauled to the top of a small hill. At first, the carcass attracted only the small vultures with which he was already familiar, but then he heard "a loud whirring noise" whereupon he "looked up and saw a fine large bird, with outstretched and seemingly

motionless wings, sailing towards the carcass that had already been partly demolished. . . . I had a presentiment that it was his majesty of the vultures, but beckoned to an Indian to come up the hill, and shewing him the bird that had just alighted, he said, 'The king of the vultures; you will see how he is adored.'" Byam watched with fascination as

the fine-looking bird approached the carcass, all the "olloi polloi" of the vulture tribe retired to a short distance; some flew off and perched on some contiguous branch, while by far the greatest number remained, acting the courtier, by forming a most respectful and well-kept ring around him. His majesty, without any signs of acknowledgment for such great civility, proceeded to make a most gluttonous meal; but during the whole time he was employed, not a single envious bird attempted to intrude upon him or his repast until he had finished . . .

Byam added that when the King finally finished eating and "had taken his perch on a high tree not far off, his dirty ravenous



subjects, increased in number during his repast," found the carcass to be "somewhat diminished . . . for the royal appetite was certainly very fine."<sup>[231]</sup> The seeming authority over other scavengers that the species possesses led it to be given names which not only describe its dominance, but tell us something about the political climate occupied by those who named it. According to Charles Waterton, the Amerindians of Guyana knew of no higher-ranking person in Georgetown than a governor, and so dubbed the King Vulture "governor of the carrion crows," in order to make others understand the species' dominance over Black Vultures. Contrariwise, Spanish speakers in the Spanish-ruled colonies of Latin America called it *Rey de Zamuros*, "King of the Vultures."<sup>[232]</sup> If communism had taken a firmer hold in the region, we can easily speculate that the species would have been known as "Commissar of the Vultures."

Unfortunately, the vast destruction inflicted on the forests of Latin America has hit the top authority very hard. The King is one of only two vultures known to be a forest specialist, and it prefers its forest untouched by development or even hunting (King Vultures are about four times more common in virgin forest than in forest that has played host to hunts).<sup>[233]</sup> Unlike the smaller vultures, Kings are rarely seen feeding on the carcasses of livestock, or on roadkill; and even within forests, they're usually found in numbers only far from permanent human settlements.<sup>[234]</sup> The King's prospects aren't helped by its [wondrous appearance](#), which makes it a valuable trophy, dead or alive.<sup>[235]</sup> Able to raise, at most, one young every year, uncontrolled killing and capturing is a much more serious problem for the King than for the more fecund Black and Turkey Vultures; and is more dire still for the largest vultures, the condors.

Although both condor species have suffered greatly in the past two centuries, the decline of the [California Condor](#) was far more precipitous than that of its Andean counterpart, simply because the prospects of survival for wildlife in 19th and early-20th century California were all but hopeless; guns were readily available, wild animals of all kinds were routinely killed on sight, and there was a pervasive frontier mentality of "us against the wilderness." The literature of the period is rife with first and second-hand descriptions of men killing Condors, usually for no reason other than that the birds were there and weren't able to flee quickly enough. In 1854, a California newspaper described how a man named Alonzo Winship found a Condor sleeping on the ground at the base of a cliff near his cabin, in the Sierra Nevadas. "Surprised that the bird had not been awakened . . . Winship hesitated a moment, then decided to attempt to kill the bird. Having nothing but his shovel he threw it with all his force, striking the condor and breaking its wing."<sup>[236]</sup> A proud pioneer moment, that. Another account tells that a hunter was out on a deer-hunting trip with three boys and a guide, when:

I noticed an adult vulture perched about 25 feet below a cliff. . . . We watched her for a few minutes, then tried to scare her by shouting at her, but she would not take wing. We threw stones at her but they all fell short, striking the cliff below her perch. At last the rancher proposed I should shoot at the cliff near her but I declined, saying that he had better do so, as his rifle was smaller than mine. I cautioned him to be careful not to hit her. . . . He raised his rifle and fired and I was surprised to see her go tumbling down the cliff . . ."

The hunter then decided that the Condor's skin might be worth something, so he tracked down the wounded bird, finding it "full of fight with one wing crippled. After a hard tussle with her, I succeeded in killing her by driving the heavy blade of my knife into her brain."<sup>[237]</sup> Other Condor-killers preferred their victims unable to escape; taking a cue from their South American counterparts, they lured the birds into baited pens too small to allow them to spread their wings, where they would be trapped until they were clubbed to death.<sup>[238]</sup> Despite many claims to the contrary, there is no evidence that



Condors ever gorge themselves until they are literally unable to fly.<sup>[239]</sup> However, they could be rendered flightless by sickness or injury, in which case they were often lassoed or pelted with rocks by passersby. Such stories (and there are scores of them) leave little doubt about the primary cause of the California Condor's terrible decline in the 19th century.

Unlike many other heavily persecuted vultures, the body parts of the Condor were usually reckoned to be of little if any practical value - with the exception of the Condor quills used to hold gold dust by California miners, which have become an almost-legendary artifact of the gold rush years of the 19th century. Sad to say, the reality behind these artifacts of enduring fascination (right) is a little mundane. The miners who used these odd containers acquired through trade or by killing the birds along with most of the quill, and checked if the hollow tube that remained could hold 10 cubic centimeters of fine sand.<sup>[240]</sup> If it did, then the miners then had themselves a handy pouch measure of gold dust. Some Condors were although the practice likely started because Condors would sometimes find discarded by the birds as bathing spots.<sup>[241]</sup> Considering these pouches (and who's to say that an into the quills of unusually small Condors, or debts?), it's unlikely that they were ever much miner could show off in San Francisco or the trekked into California's untrammelled there were countless small, hollow objects, served just as well as dust pouches. The killing baubles out their feathers ensured that the frequent accusations of "greed" leveled against vultures never plumbed greater depths of hypocrisy than when spoken by Californians.



When Lewis and Clark's expedition first saw the California Condor in the early 19<sup>th</sup> century, it probably numbered in the thousands and ranged all over what would become the state of California, with smaller populations in the Pacific Northwest and in Baja California. No historically occupied nests of the species were ever found outside of California, but the Condors must have been breeding at least as far north as Washington State, and possibly into British Columbia, in order to account for the many sightings of the birds in this area.<sup>[242]</sup> The first Condors sighted by Lewis and Clark belonged to this northwestern population, which was almost extinct a century after their expedition had passed along the Columbia River. Carl Koford, the recognized expert on the species, claimed that the last authentic sighting of a Condor in the region was in 1834,<sup>[243]</sup> but many disagree with him. In 1860, it was written that, "The Californian Vulture visits the Columbia river in fall, when its shores are lined with great numbers of dead salmon, on which this and other vultures, besides crows, ravens, an many quadrupeds, feast for a couple of months." There were plausible Condor sightings as late as 1904, and at least one ornithologist who spoke to woodsmen working in Southern Oregon at the same time had no trouble believing that they had really seen Condors.<sup>[244]</sup> Writing in 1908, the naturalist William L. Finley suggested that as humans moved in and the Condor population around the Columbia River decreased, the last of them took refuge in the rugged Oregonian mountains.<sup>[245]</sup> If these birds represented a distinct population, rather than juvenile Condors wandering north from California, then they didn't last much longer; they were almost certainly gone by the 1940s, and probably a decade or two earlier.

The Condor population in Mexico's Baja Peninsula - which, as you may recall, originally gave California its name - lasted a little longer. As in upper California, Condors in Baja were killed so that their quills could be sold to gold prospectors. Apparently some Cattle ranchers also believed that the birds spread disease, though this could have just been a convenient excuse for killing them. During a journey through the Sierra San Pedro Mártir Mountains of the peninsula in 1936, Carroll Dewilton

Scott noted that all of the locals agreed that the California Condor had become increasingly scarce since about 1920; before that, 20 to 30 Condors could be seen on any summer day when dead Cattle were lying about. He added that no wildlife of any kind was protected on the peninsula, and that once he saw some local vaqueros scare a dozen Turkey Vultures from a carcass, whereupon, "According to their habit the cowboys fired revolvers at the birds."<sup>[246]</sup> One Condor was reported in the peninsula in 1935, but this was probably the last confirmed sighting. The Baja population was entirely extinct by 1940.<sup>[247]</sup>

There were also many claims that Condors survived in the southwestern US beyond California, fueled partly by reported sightings in the 19th and early 20th centuries, and partly by Condor remains found in the Southwest that at first appeared to be only a millennium or two old. The seemingly recent remains are actually much older; no Condor remains outside of California have been reliably dated any later than 9,000 years ago.<sup>[248]</sup> The sightings, mostly from Arizona and southern Utah, are less easily explained, and remain a matter of much controversy. Some ornithologists discount them entirely, while others feel that they serve as persuasive evidence that Condors did maintain viable populations outside of California in historic times.<sup>[249]</sup> As most of these sightings took place along or near the Colorado River (such as the many sightings in the Grand Canyon

area), it's possible that the Colorado and its associated fish and mammals served as a dependable source of food for the Condors, much as the Columbia River did for Condors in the Pacific Northwest.<sup>[250]</sup> There have also been suggestions that, despite the purported "endless decline" of the species, the California Condor actually managed to briefly expand its range in the Southwest after European settlement. If so, this was partly because of an overabundance of natural food; the



populations of deer and other large mammals likely exploded as Amerindians, their primary predators, were decimated by disease. But more importantly, domestic Cattle were first introduced to the Southwest in the late 18th century, when the area was under Spanish rule. By the beginning of the 19th century, the Cattle population had surged to an estimated 75,000 animals, a great many of which were stray or feral and entirely unmanaged. During the *matanza*, the months of July through October, the Cattle were rounded up and slaughtered in huge numbers, but usually only the tallow (fat) and leather of the carcasses were harvested; the meat was left for scavengers. These Cattle seem to have comprised the majority of the California Condor's food<sup>[251]</sup> – and of course they were a boon for all other scavengers, too.

The United States' conquest of Mexico's northern territories in the Mexican-American War of 1846-48 and the resulting influx of American farmers and ranchers reduced the size of these great herds – although, bizarrely enough, that conflict may itself have led to a brief expansion in range for a few Condors. An American veteran of the war, Samuel Chamberlain, claimed to have seen a Condor during the summer of 1847 (feeding on the body of one of his comrades, no less) in the Sierra Madre Mountains of northern Mexico, between the cities of Saltillo and Monterrey. As there were no other eyewitnesses present and Chamberlain didn't sketch or shoot the bird, it's difficult to be sure that this really was a Condor; assuming that Chamberlain didn't just make up the encounter, it could also have been a vagrant King Vulture or some other misidentified bird. That said, Chamberlain's description of "an enormous bird like a Buzzard" that was dominant over all of the other scavengers present at the corpse and that, when approached, "bustled up like a Turkey Cock" and had to "run down the road, then spring on to a rock" in order to become airborne again, does suggest a Condor.<sup>[252]</sup> If so, this bird was one accomplished traveler; the nearest Condor population to the war zone was in Baja California, approximately 600 miles (960 km) away; and since reaching mainland Mexico from Baja would involve an improbably wide sea crossing, it was more likely to have flown from the territories in Arizona or Alta California, which were hundreds of miles farther. Whatever else California Condors may be accused of, they certainly can't be called timid or lazy in their quest for carrion.

Such unusual events aside, all evidence indicates that from the introduction of Cattle until the middle of the 20th century, the diet of California Condors consisted overwhelmingly of this resource, together with smaller amounts of domestic Sheep and Mule Deer.<sup>[253]</sup> This food source was important enough to the Condors that it marked the second major dietary shift documented for the species (the other being the life-saving switch from terrestrial megafauna to marine mammals and fish at the end of the Pleistocene). But this about-face from seafood to beef wasn't due solely to personal preference on the part of the Condors; at roughly the same time, commercial hunting of the marine mammals of the Pacific was starting to make a serious impact on their numbers.<sup>[254]</sup> If not for the introduction of Cattle, the California Condor might well have become endangered in the mid-19th century instead of the mid-20th.

To this day, it isn't entirely certain how many Condors there were when European settlement began on the Pacific coast. American pioneers who settled in California during the 1860s and 1870s were vocal with the belief that mobs of Condors could be seen that were just as numerous as those of Turkey Vultures. One Hector Angel of the Warner Ranch south of Los Angeles said that after a March 1886 snowstorm, which killed thousands of lambs, "There may have been 1,000 condors and 5,000 buzzards for all I can tell." He claimed to have ridden through acres of Condors and Turkey Vultures.<sup>[255]</sup> Angel's account may have been grossly exaggerated, but there still must have been at least a few hundred Condors at this feast; more than there could be found in the entire population of the species during the last three-quarters of the 20th century. Even in the strongholds of the species in



California's mountains, it was unusual to see gatherings of more than 20 to 25 Condors by the late 19th century. Ornithologists writing at the time commented that the species had "rapidly grown scarce" over the past 50 years, and seemed to be "very much diminished during the last few years."<sup>[256]</sup> The most precipitous decline, fuelled largely by random shooting as well as target-specific "collecting" for museums and private collections, happened between 1880 and 1920, when Southern California's human population was increasing rapidly and before the species was granted any substantial protection.<sup>[257]</sup> There's a preponderance of young Condors that hadn't yet reached adulthood in these collections, simply because the young birds hadn't yet learned to be wary of humans and so were more easily approached than the shyer adults.<sup>[258]</sup> Condors continued to feed along the Pacific shore with some regularity, but as the beaches fell to development the increasingly shy birds were excluded, and no more were seen near the sands after 1920.<sup>[259]</sup> Fortunately, the Condors could still gather calcium-rich shells for their chicks from subfossil deposits found further inland;<sup>[260]</sup> but the sudden exclusion of seafood from the Condor diet - the very food that had saved the species from extinction at the end of the Pleistocene - can't have done the birds any good.

Among the few redeeming qualities of Californians' attitudes towards the Condor was that it was largely spared that near-universal curse of large vultures, being labeled a livestock killer. There were occasional dubious reports of Condors attacking calves or lambs,<sup>[261]</sup> but it seems that relatively few people believed them, and they largely lost currency as the Condors became increasingly scarce. During his landmark study of the species in the 1950s, Carl Koford encountered only one rancher who was convinced that the Condor was a threat to livestock, and who said that "he would shoot any condors which he saw near his sheep."<sup>[262]</sup> The Condors were troublesome for another reason. Whatever the California Condor would later become in the minds of Americans, its significance to the earliest American pioneers in California was singular: it was "a despoiler of hard won provender," a meat thief. Before livestock arrived in numbers, California's Mule Deer, Elk, and Pronghorn comprised much of the diet of white settlers as well as of the Condors; and predictably, there was much competition between the two parties for this resource. Like the many hunters who would come to the West in their wake, the men of the Lewis and Clark expedition had problems with vultures and other scavengers devouring their kills. Lewis's account for March 28, 1806 mentioned that men who had been sent to haul deer carcasses back to camp "brought in the remnant which the Vultures and Eagles had left us; these birds had devoured 4 deer in the course of a few hours. . . . Joseph Fields informed me that the Vultures had dragged a large buck which he had killed about 30 yards, had skinned it and broken the back bone." Fields may have borne a grudge against the Condors for this offense (although the broken backbone sounds suspiciously exaggerated); the expeditionary journal's last mention of the birds is that of April 6, "Jos. Field killed a vulture of that species already described," near the mouth of the Sandy River.

One Californian pioneer victimized by Condor thievery, Andrew Jackson Grayson, was more literate than most of his kind and penned this description of his troubles with the birds:

I remember the time when this vulture was much disliked by the hunter for the ravages upon any large game he may have killed and left exposed for only a short length of time. . . . One fine morning I had shot a large and exceedingly fat buck of four points, on the hills above my little cabin. Taking a survey of the sky in every direction I could not discover a single vulture, and, as my cabin was but a short distance from the spot, I concluded not to cover my game as I could return with my horse to pack it home before the vultures would be likely to trouble it. . . . I was gone about two hours, when, on returning, I found my game surrounded and covered by a flock of at least a dozen vultures, and with others still coming. . . . So busy were they, tearing and devouring the deer and fighting among themselves that I approached quite

near before they saw me, when all arose, some flying a short distance and perching upon the rocks and sides of the hill, while others less gorged were sailing around taking a bird's-eye view of the half consumed deer and my chagrin.<sup>[263]</sup>

California Condors were very quick to learn the significance of men with guns, and to profit from their actions. The birds were reported to often follow hunters all day, expectantly waiting for a share of the kill.<sup>[264]</sup> When a kill was made, according to observers in A. C. Bent's *Life Histories of North American Birds*,

these birds would be seen rising above the horizon before the body had grown cold, and slowly sweeping towards them, intent upon their share of the game. In the absence of the hunter, unless well protected, these marauders will be sure to drag out from its concealment the slain animal, even though carefully covered with branches.<sup>[265]</sup>

The immense strength of the Condors made them more problematic than smaller scavengers like Turkey Vultures and Ravens. Unlike their smaller brethren, the Condors were capable of moving large carcasses for some distance, either to remove them from brushy areas or simply as an inadvertent effect of their struggles over the food. Four Condors were once seen to drag the carcass of a young Grizzly Bear, topping 100 pounds (45.5 kg) in weight, for 200 yards (183 m).<sup>[266]</sup>

Although no one knew it at the time, this proclivity for shot animals would claim a heavy price among the Condors. To hunters, the only pertinent properties of their lead bullets are that they're comprised of soft metal that can't damage gun barrels when hurtling through them at hundreds of miles per hour, but that does shatter into lethal fragments when hitting solid objects at the same speed. To scavengers, and especially to vultures, there's an additional property of much concern: in chemical terms, lead is very similar to calcium, a vital mineral that all animals with bony skeletons require in their diet. As mentioned [in Chapter 1](#), vultures that feed primarily on large carcasses have a serious dearth of calcium in their diets, and appear to be more efficient at extracting calcium from their food than most other animals.<sup>[267]</sup> This unique ability proved lethal once animals with lead bullets and fragments in their bodies began to be eaten by the Condors. It's now thought that lead poisoning was likely the single most serious cause of California Condor mortality for most of the 20th century;<sup>[268]</sup> and even in the 19th century, when Condors themselves were shot in huge numbers, death by ingestion of lead must have exacted a fearsome toll of the birds.

As late as 1897, when a shot-dead Condor was sold to a saloon keeper by its killer for \$2,<sup>[269]</sup> the California Condor was believed to be all but worthless by most citizens of the state. That opinion began to change as many people began to wake up to how rare and unique the Condor really was. Wasting no time, they took action; egg collectors began to pay premium prices for Condor eggs (up to \$300 in 1910),<sup>[270]</sup> and museums and private collectors scrambled to grab Condor skins for their collections. In economic terms, this was a classic example of the tragedy of the commons. When faced with a "resource" that was, theoretically, self-replenishing, but that had been depleted to the point where there was a real threat of it vanishing entirely, people chose to deplete it *even more quickly*, with the perennial excuse that, "If we don't, someone else will." The state of California officially protected the Condor from all types of hunting in 1905; but the protective laws were, at best, unevenly enforced, and many people continued to kill Condors, either being unaware of their protected status or simply not caring. Not everyone was quiet in the face of these depredations; in his 1923 book *Birds of California*, William Leon Dawson declared that "A dead Condor could win a moral beggar a

momentary applause at the local hardware store; but a Condor wantonly slain was a dead epic . . . an indictment of a civilization false at the core.”<sup>[271]</sup>

By the early 1930s, that false civilization had driven the Condors into the small, U-shaped area in the mountains north of Los Angeles – which could be overflowed by any Condor in the space of a single sunny day<sup>[272]</sup> - that would remain their only haven until the 1980s. Measures were taken to at least provide the Condors with havens from human encroachment; the Sisquoc area near Santa Barbara was set aside as a development-free Condor Sanctuary in 1938, and the much larger Sespe Condor Sanctuary was established in 1947. Yet, although the Condor's range remained largely unchanged thereafter, its numbers continued to fall. The total world population of the California Condor was estimated at only 45 birds in 1976, a decline of a fifth since 1965 and over half since 1940.<sup>[273]</sup> It was then clear that something drastic would have to be done if the species was going to survive the century; but there was much argument over what that something was, or how drastic it should be.

The opinions surrounding the California Condor in the 1980s, when concrete action was finally taken, can be broadly divided into two camps: those who wished to capture some or all of the remaining Condors and impress them into a breeding program, the Interventionists; and those who wished to preserve all of the remaining Condors in the wild with minimal human intervention, the Preservationists. Each camp contained many further divisions of opinion; the Preservationists included persons who believed that the Condors should be left wild because any captive breeding program would inevitably fail, as well as persons who believed that capturing the Condors would be a corruption of the species and that, even if doomed, the California Condor should be allowed to “die with dignity” in the wild. (Though an explanation of how slowly wasting away from ingested lead, being poisoned by cyanide-laced Coyote bait, or getting shot by a careless hunter could possibly be construed as “dignity” was not forthcoming.) There was also an openly anti-Condor faction, allied with the Preservationists by stance if not by attitude, who wouldn't or couldn't understand why *anything* should be done to save a mere “big buzzard.” Although this viewpoint was fueled by the reactionary American backlash against all things ecological during the 1980s, it was probably also the prevailing opinion about the fate of the California Condor outside of the US, where the emotional stakes that many people had invested in the species weren't readily understood. Some Europeans whose own vulture recovery programs progressed with comparatively little cost and fuss were understandably bemused when contemplating the projected complexity and cost of the Condor program. Less excusable (and more illogical) was the viewpoint espoused by a 1984 BBC-produced television series and accompanying book, entitled *Zoo 2000: A Look Behind the Bars*. This heavily opinionated “documentary” concluded that the cost of the Condor recovery program - then amounting to about \$25 million - was a waste of money, as, “The chances of condors returning to wheel and soar above California seems very remote.” It also suggested that the California Condors should be allowed to die out and then could be replaced with Andean Condors, “which might prove more successful than their Californian cousins.”<sup>[274]</sup>

The Interventionists weren't quite so prone to bouts of idiocy, nor so riven by differences of opinion, but theirs was still the more difficult position. In essence, their foes among the Preservationists believed that the status quo should continue, though possibly with additional protection efforts for the Condor. A successful Interventionist effort would require drastic changes in policy: some or all of the wild Condors would have to be captured without harming them; all of the captive Condors would have to be paired off and induced to breed; any resulting young would have to be raised without becoming imprinted on humans; and a reintroduction program would have to



devised and carried out for the captive-bred Condors. Meanwhile, the Condors' habitat would have to be preserved, although there might be no wild Condors left to fly in it. Needless to say, these challenges initially appeared to be utterly insurmountable to many people. But of all the California Condor recovery program's innumerable foes and obstacles, the most dangerous wasn't an environmental problem, a Condor behavioral quirk, or a bureaucratic entanglement; it was an element of the Condor's reputation in modern America. A misapprehension espoused by a great many people who should have known better, including not a few who claimed to be friends of the Condor. And its pernicious influence could have killed the effort and condemned the California Condor to extinction, had the men and women involved in its recovery program been even a shade less resourceful and determined. For almost a century, an ultimate and none-too-distant destiny of extinction was part of the accepted ethos of the California Condor in America; and we need not look far to find examples of this in the literature. Here's a small sampling:

"Is not the California Condor a senile species that is far past its prime? . . . Is it not a species with one foot and even one wing in the grave?"<sup>[275]</sup>

". . . the California Condor, a dying relic of the Pleistocene . . ."<sup>[276]</sup>

"This huge, primitive New World vulture is in decline as a species in evolutionary terms . . ."<sup>[277]</sup>

". . . condors have now crashed head-on with a rapidly changing twentieth-century world in which they are ill-equipped to operate. While their smaller cousins survive . . . the condor is only hastened toward oblivion. Condors . . . have now become dust collectors - obsolete curiosities that hang on by the merest thread in remote regions . . ."<sup>[278]</sup>

"The California condor is an example of a Pleistocene relict. . . . This magnificent condor has been on the wane for thousands of years. . . . In spite of elaborate breeding programs, it is probably doomed . . ."<sup>[279]</sup>

Ladies and gentlemen, the guardians of our natural heritage at work! (But with guardians like these, who needs destroyers?)

The theory of "species senescence" or "biological senility," which postulates that some organisms are doddering relics incapable of further adaptation or evolution and are just waiting around for a change in circumstances to render them extinct, has waxed and waned in respectability for many years now. Whether or not the theory is accepted as valid, its label has been plastered with unique and irrational vehemence to the California Condor; and the Condor simply doesn't deserve it. The truth is, hundreds of still-living species suffered drastic declines in numbers or range, or both, at the end of the Pleistocene; the California Condor hardly stands alone in that regard, and relative to their former glories, many animals are worse off today than the Condor. The Lion, for example, occupied virtually all of Africa and much of Eurasia at its peak; and the same or a closely related species also ranged throughout all of North America and a significant portion of South America. At the end of the Pleistocene, the golden cat was extirpated from *two entire continents*; it vanished from the Americas, leaving only fossils behind. Lions steadily declined in both range and numbers since then; and are still doing so to this day, when they occupy only scattered patches of sub-Saharan Africa and one small preserve in India. Clearly if the California Condor is doomed to extinction, then the Lion is as well; yet we've heard no chorus of voices calling the Lion "senile," "obsolete," "a relic," and demanding that it be left to die. Or take the case of an even more popular animal, the Giant Panda. Pandas also fared poorly with the passing of the Pleistocene, vanishing from much of their original habitat; and since the inadaptably bears are solely dependent on bamboo forests for habitat and food,

there are now grave concerns about their ability to survive in the wild in an increasingly industrialized China. But the Giant Panda isn't held up as the epitome of biological senility, the California Condor is. Why?

Partly because any scientist who dared to publicly suggest that the Giant Panda should be abandoned to extinction would immediately be disowned by their colleagues, and possibly lynched by a mob of angry schoolchildren; but there's more to it than that. To understand why the California Condor was foredoomed to a quiet, pointless death in the minds of so many people, we have to take a look back through its recent history with humanity - all the way back to the genesis of the Lewis and Clark expedition. That expedition was the brainchild of Thomas Jefferson, the most scientifically-minded president in US history, and it was dispatched in large part for the purpose of scientific discovery. Although it's difficult to think of the American West as a *terra incognita* today, that's what was in the early 19th century: a vast and mysterious place populated only by "savage" Amerindians and no less savage white trappers, and about which the most fantastic and outlandish rumors flourished because they could not be proven wrong. When Jefferson sent the Lewis and Clark expedition into this wonderland, neither he nor anyone else in the scientific community was sure of what it would find there. Many people were firmly convinced that North America west of the Mississippi was a "lost world," a refuge for ancient and monstrous creatures that were extinct everywhere else. Jefferson himself held out a hope that the expedition would encounter living representatives of the giant mammals whose fossils had already been discovered in the East.

Impressive as the expedition's discoveries were, they didn't include Woolly Mammoths or giant ground sloths. They did include California Condors, which were noted as the largest of North America's birds of prey, and which were markedly unlike any familiar birds of the East. Far larger than either the Bald or Golden Eagle, and twice the size and many times the weight of the common vultures of the East, the Condors truly were giants in a strange land. Like the other large animals that Lewis and Clark had discovered, the Condor declined as the West was populated by Americans, but there was little reason for anyone to consider it differently than the Plains Bison or Grizzly Bear in that respect. This simple truth was elegantly expressed by William Leon Dawson, who pointed out that, "Civilization has about done for the Condor, as it has done for the bison, the grizzly, the bighorn and the antelope, or, for that matter, the Indian."<sup>[280]</sup> In the late 19th century, the Condor was considered a relic only because it was a denizen of a vanishing wilderness, not because anyone believed it to be a living fossil.

But the Condor had more than a few skeletons moldering in its closet (or rather, in its tar pits), and before long they were unearthed to haunt it. Paleontological work carried out in the western United States from the 1890s onward led to the realization that, far from being a sylvan paradise unmarred by humanity, California and the rest of the West had actually lost most of its large animals thousands of years before Europeans first arrived. In that far distant time, the California Condor was but one of a galaxy of giant carnivorous birds. As thousands of Condor fossils were unearthed from the tar pits of La Brea - representing, in a single deposit, more individual Condors than were actually alive on Earth during the early 20th century - the contrast between the current and former situations of the species made a deep impression upon many naturalists. None more so than Loye Miller, the paleontologist responsible for describing several of the extinct vulture species, who felt compelled by the evidence to write that though the Condor "was widely distributed and numerically abundant in Pleistocene time . . . now it is restricted to one or two localities and a numberable roster of individuals." This was a stark contrast to the success attained by the smaller Black and Turkey Vultures after the Pleistocene; as a result, Miller concluded that the California Condor was doomed to

follow Merriam's Teratorn, the Errantgeier, and Clark's Condor into extinction.<sup>[281]</sup> As the Pleistocene closed and the Holocene began, all but a few of the large mammals of North America had disappeared, as had every condor-sized avian scavenger - save the California Condor itself. And although it hadn't disappeared with its contemporaries, it had vanished from most of the range that it once inhabited.

These discoveries took place long before the scientific community gave much credibility to the theory that overhunting and other ecological disruptions by humans had caused the Pleistocene extinctions. At the time, extinctions were believed to always be the end result of long, slow, inexorable and *natural* declines; and what better example was there of such a decline than the California Condor? It had once been widespread and numerous in North America; now it was subjugated to a narrow strip of land along the Pacific coast, and not abundant even there. The Condor was a relic twice over; it had been one in pre-Columbian times, and it was more of one in the modern era, when the Amerindians and all of their traditional faunal companions had been rendered irrelevant by the march of progress. There were fewer Condors every year; so here, surely, was a bird destined for extinction. Jefferson was vindicated; there *was* an antiquated survivor of the ice ages lurking beyond the farthest reaches of the Louisiana Purchase; and it was now so outdated that it was reduced to stealing meat from hard-working pioneers to survive! All of this was exacerbated by two easily overlooked but very important factors. First, regardless of its actual age a California Condor, with its bald and wrinkled head, loose-fitting cloak of black feathers, and dowager's collar, *looks* like an old bird to people used to associating such traits with venerability. Second, as inhabitants of a culture that values youth and that temporary condition of "newness" above just about everything else, Americans are not noted for their understanding of or respect for the ancient.

This characterization of the vulture is made bitterly ironic by the fact that the Condor is, in evolutionary terms, a *new* species, newer than all but a few of its living contemporaries. The Pleistocene-era California Condor fossils found across much of North America are the remains of birds recognizably different from present-day Condors. There is some debate about whether these fossils represent a distinct species or a temporal subspecies of the California Condor; but there is no question that they represent birds ancestral to the Condor, and that they were not the same as the present-day species. These fossils may be called "California Condors" for convenience's sake, but the birds that left them were different, just as fossils of the anatomically archaic *Homo sapiens* of 100,000 years ago are recognizably different from the bones of present-day humans. It's needlessly cruel (not to mention unscientific) to callously deny that a species fought through a thousand generations of hard-won evolutionary change, just because that change doesn't jibe with the rose-tinted view of that species as a static throwback to a simpler, purer age.

So much for the myth. The facts were that by the mid-1980s, there were fewer than 30 California Condors left alive in all the world, and they were still steadily dying from various kinds of poisoning, leaving no doubt of humanity's culpability in the decline of their species. With little hope that the situation in the wild was going to improve in any way, the fateful decision was made to save the species. All of the remaining Condors were rounded up, and the very last wild California Condor was captured and taken into captivity, on Easter Sunday of 1987.





That day marked the beginning of a new chapter in the enduring saga of human-vulture relations. At various times, the naked apes and the bald birds had been friends and enemies, had depended on each other for food, and had inspired each other to new actions and (at least in humanity's case) new ideas. But never before had a species of vulture been entirely dependent on humanity for its continued survival, and never before had humans found the ultimate fate of one of the world's supreme scavengers entrusted into their unsteady hands. The California Condor ([left](#)) thus joined the unenviable ranks of the Père David's Deer, Black Soft-shelled Turtle, and Przewalski's Horse as one of the few once-wild animals that now existed only in captivity, and whose further existence hinged entirely upon the actions of mankind.

This wasn't an ideal situation for anyone involved; not for the Preservationists, who saw the last of their beloved symbols taken from the skies and locked up; not for the anti-Condor crowd, who could only wring their hands and

flap their mouths as millions of dollars and countless man-hours were spent to save "flying garbage cans"; and not even for the Interventionists, who would now shoulder the blame for anything that would go wrong with what would assuredly be a very difficult and costly recovery program. Nevertheless, it was the state of things after April 19th, 1987. If the Condor really was, as William Leon Dawson wrote, the "heart of California . . . the heart of mystery, of wonder, and of desire,"<sup>[282]</sup> then California was no longer the kind of place anyone could fall in love with. After all, its heart was now held under lock and key, however temporarily, behind steel bars and wire mesh.

Throughout California's eventful history, people from around the world had traveled to this land of incredible natural wealth for many reasons: to dig for gold, to trap for furs, to carve out their own little slice of suburban utopia, and above all, to escape - from poverty, from oppression, or just from foul weather. Although on the one hand it is bizarre, and unfortunate, that a creature like the Condor found its last refuge in a place like California, on the other hand it is almost frightfully appropriate - for who *didn't* find refuge in California? Whatever the Golden State has become in today's popular mind, there was a time when it could be all things to all people; a trait that, as you may have noticed, was passed on to the unique and strange "griffin" for which the land had been named. The human inhabitants of California hadn't long remembered what the name of their land really meant, but no matter, for the namesake was still around to dazzle and impress. What luck to share the land with such a creature: A flying mischief-maker, astounding to watch, and a joy to be with; yet seemingly of another time and place, and worryingly oblivious to the troubles and dangers of the real world. In the unlikely visage of a hulking, red-eyed condor, the Never-Neverland of California had found its own Peter Pan; but where that fictional personification of eternal youth was

abandoned by his own shadow, the real-life vulture warped and twisted into an embodiment of senile obsolescence was betrayed by its silhouette in a more sinister way. The cultural shadow cast by the Condor stuck by it too long and too closely, smothering it until the real bird was all but crushed beneath the avalanche of myth and ignorance. Even the Condor's broad shoulders couldn't bear aloft the weight of its reputation as a relic of the ice ages, as the last remnant of the American frontier, as a creature that was irretrievably violated by the touch of human hands; and, most of all, as a lowly and worthless "buzzard." Perhaps it should never have had to bear the burden in the first place; but it still remains to be seen if all of this can, or will, be replaced by something that will serve both vulture and human better.

## Chapter 9

# This Just In - Urban Legends of Modern Media are Inspiration for Aviation!: Vultures in the Modern World

No, no, no, no, no - not dead, just resting.

-Lyle Rogers (Warren Beatty), attempting to dissuade vultures from eating Chuck Clarke (Dustin Hoffman) in Elaine May's film *Ishtar* (1987)

. . . the view of the great vulture in sailing flight inspires at once the desire for imitation; it is a dirigible parachute which man may hope to re-produce.

-Louis-Pierre Mouillard, *The Empire of the Air*

For decades, the Spanish-administered Mediterranean island of Mallorca (also known as Majorca) has been a popular destination for tourists of all stripes. Traveling there from mainland Europe or Britain is quick and easy, the scenery is marvelous, and food and lodging was, and maybe still is, splendid and inexpensive. Mallorca is an especially popular destination for birdwatchers, as it's small enough - barely 100 miles (160 km) across at its widest - to traverse easily, yet also has terrain rugged enough and a human population sparse enough to shelter a number of rare species. Of all of Mallorca's birds, the most popular attractions are also the largest ones: Monk Vultures. The island is the smallest landmass that holds a resident population of the world's biggest raptors; and the sight of these gigantic birds, affectionately known among British birders as "flying bedsteads," is enough to make the journey well worthwhile for any adventurous birdwatcher.

In the mid-1970s, some birders also caught glimpses of another kind of large vulture wheeling in the Mallorcan skies. Only about two-thirds as large as the Monks, with relatively shorter wings and contrasting dark- and light-colored plumage, the sight of them was momentous for birders experienced enough to know what they were. The smaller vultures could only be Eurasian Griffons migrating from Europe to Africa, which were very rare visitors to Mallorca, and therefore an exciting sight for the many birdwatchers who sought after little-seen birds - except that, upon closer examination, it was obvious that the vultures *weren't* Eurasian Griffons. They were too small, they were too dark, and most importantly, they weren't migrants; they were residents that displayed no inclination to leave the island. If any of the puzzled birders chanced to have a field guide for Southeast Asian birds with them, they would quickly have been able to deduce that the griffon-like shape and white-grey-and-black coloring of these mystery birds indicated just one species: the White-rumped Vulture.

The *White-rumped Vulture*? The vulture that was most famous for loitering around garbage dumps and slaughterhouses in *India*? The presence of this species on Mallorca was more than just unexpected, it was seemingly inexplicable; these were vultures that, by all rights, shouldn't have been anywhere west of Iran, and certainly nowhere near Mallorca. The story of how these birds ended up flying free on a Mediterranean island thousands of miles from their usual haunts is not only very improbable, but it also says a few pointed things about the roles that vultures play in the modern humanized world.



It starts with one of the stranger developments in animal husbandry to emerge during the 20th century: the safari park. A safari park is intended to be a more-or-less faithful recreation of an ecosystem - usually, though not always, the African savannah - including most of the large and conspicuous animals of that ecosystem, which is constructed in a large outdoors area traversed by roads with few or no visible restraints upon its animals. The idea is that visitors to a safari park may drive through it at their leisure and experience their preconceived expectations of what the ecosystem would be like, without having to endure the inconveniences and dangers inherent in the real thing. Vultures are among the first animals that come to mind for many when picturing the wildlife of Africa. To people who have seen countless African-themed television programs and films that featured vultures circling overhead or crowding around Lion kills, a re-creation of the Serengeti just wouldn't be complete without them, not even on a small Mediterranean island. And so, in the 1970s, the management of a Mallorcan safari park decided to import a few vultures, intending to use the birds to add some visual verisimilitude to its exhibits.

The easiest place for animal traders to obtain large vultures at the time was in India, where the legions of White-rumped Vultures were so habituated to people that capturing them entailed nothing more difficult than throwing a net over the perpetual crowd of resident scavengers at the nearest slaughterhouse or dump. Of course, the presence of these birds wouldn't be entirely accurate in an African-themed safari park - White-rumped Vultures are native to South Asia, not to Africa - but few patrons of the park would be able to notice this discrepancy, and few would care even if they knew of it.<sup>[1]</sup> The important thing would be the mere presence of the vultures, and their ability to lend just a hint of ominous menace to the park. But wait (you may be thinking); wouldn't the vultures just fly out of the park after being released there? Well, zoos and safari parks quite often keep large, hardy birds like vultures outdoors in open, uncaged enclosures. The promise of a reliable food supply is ordinarily enough to keep them from vacating the premises; but, as insurance against escapes, such birds are grounded by feather trimming. This procedure entails cutting off some, or all but one, of the bird's primary feathers on each wing.<sup>[2]</sup> At least one primary of each wing is usually left intact, both for the aesthetic effect and to protect the bird's secondary feathers when the wing is folded.<sup>[3]</sup> Compared to more invasive methods of grounding birds, trimming has the advantage of being both painless and reversible; but, since it is reversible, the birds must be monitored, and their feathers trimmed regularly, to ensure that their primaries don't grow back and allow them to take to the sky. Such careful observation isn't a problem in a traditional zoo, but animals in safari parks are the beneficiaries (or victims) of *laissez-faire* care; aside from being fed and watered regularly and periodically checked for obvious injuries, they are largely left to their own devices. Something as easily overlooked as brand new primary feathers on a few vultures that aren't supposed to have them isn't likely to be noticed.

Not long after they were deposited in the safari park, the trio of supposedly grounded White-rumped Vultures managed to take to the air and flew off to the mountains of northern Mallorca. The management of the safari park apparently decided against trying to recapture the birds; after all, it would be cheaper, easier, and less embarrassing to simply buy more wild-caught vultures. And so, inadvertently freed by lax feather inspections and the vagaries of zoological economics, the Vultures had a merry time in their new surroundings. These birds of Asian jungles and Gangetic plains adapted admirably to the Mediterranean climate, forming themselves into a miniature colony, ranging over an area stretching about 10 miles (16 km) along the coast from the peak of Puig Mayor to their favorite haunt, Castel del Rey (a large castle overlooking the sea), and feeding on whatever carrion and rubbish they could find. Their disinterest in leaving the island is easily explained by the

lack of serious competition that they encountered; the only other vultures in Mallorca were the then-very rare Monk Vultures and the much smaller Egyptian Vultures - ironically, both species with which the White-rumped Vultures were probably already acquainted from their pre-captive lives in South Asia. Turned loose in an island that they had never made, perhaps the White-rumped Vultures found a comfortable familiarity in the presence of these other vultures. They certainly weren't shy about associating with them, and confusing unsuspecting birdwatchers in the process.

Predictably, the serendipity of this improbable chain of events was lost on the birders who had spent good time and money to travel to Mallorca to see *wild* birds in their natural habitats, not to be confused by a bunch of escaped zoo vultures. Once it was deduced that the griffon-like vultures were, in fact, nothing but a trio of exotics on the lam, their luster was lost for birders. Seeing a rare bird in its natural range is an experience that every birder worth their seed aspires to; seeing a bunch of escaped zoo birds fly around where they shouldn't have been in the first place isn't. The reputation of the White-rumped Vultures wasn't boosted by the misidentifications of the continuous stream of newly arrived birders, who ever-hopefully continued to confuse the White-rumps with Eurasian Griffons - until they were told the hard truth by birders already familiar with the "confounded 'Escapees,'" as the White-rumps were colloquially known among the veterans. Few of the newly arrived birders could have suspected the presence of White-rumped Vultures because, of course, no birders' field guides had listings for escaped exotic birds.<sup>[4]</sup> It must have broken many a bird-watcher's heart to later learn that the ultra-rare native European vultures that they *thought* they had seen wheeling in the Mediterranean sun were, in fact, merely a trio of broken-out zoo exhibits enjoying an extended Mediterranean holiday.<sup>[5]</sup>

Even the most imaginative cultural critic would be incapable of inventing a scenario like this, in which birds captured in a third world city were brought to a first world resort island in order to make a part of it look more like a tourist's conception of Africa, only to escape and thereby anger another set of tourists who first mistook them for rare and highly valued native birds; but whom upon learning the truth looked at them as unwelcome intruders in a pristine (by European standards) wilderness. The vultures were aware of none of this, of course. They simply tried their best to survive in their new situation; but boy, did they ever come a long way, baby. Although this particular story offers a unique microcosm of many aspects of the modern human-vulture relationship, in all honesty, the overall role of vultures in the modern world is far too vast and complex a subject to tackle in its entirety, even if it weren't constantly changing and evolving, as it most certainly is. Even so, there are three facets of modern culture in which vultures have played particularly prominent and important roles. Each of these can tell us something about how vultures were viewed by humanity in the 20th century, and how they are likely to be viewed in the remainder of the 21st.

The first of these facets, the modern media, is the most familiar and mundane, yet it seems like an unlikely place to look for vultures. None would deny that starring roles in film and television are the near-exclusive province of beings that conform to current definitions of physical beauty; what place could be found for birds that few modern people find beautiful? Quite a prominent one, actually; there are scores of movies that list "vulture wranglers" in the credits of their cast and crew, and the birds are a cinematic convention in themselves. The most common usage of vultures in fictional film is as menace multipliers; a cheap and instantly recognizable way to infer a threat of death into a scene, or to shock viewers into accepting the death of a character. For many years, vultures have appeared mainly in fantasy films, westerns, and especially war films. One of their most notable appearances in wartime epics is that in David Lean's film *The Bridge On the River Kwai* (1957). This drama set in a Southeast Asian prison camp during World War II is framed with shots of

wheeling vultures: one at the commencement of the picture, before the titles are shown, and one after the denouement.<sup>[6]</sup> At the beginning, the vultures are ominous harbingers of the carnage that will close the film; at the end, they are potent symbols of the madness and ultimate folly of war. Lean astutely recognized that the mere appearance of the vultures would be enough to drive these points home for most viewers, and didn't bother to include any narration or titles explaining what the shots of circling vultures were intended to mean.

Like many other character actors, vultures have done their most recognizable (if not best) work in one genre: westerns. The western movie convention of vultures circling over a man crawling through the desert has been so ubiquitously used that it is now a cliché; but there are other, more original ways that the birds can contribute to tales of the Old West. One very memorable and effective vulture role in a western is seen in the aftermath of the climactic massacre in Sam Peckinpah's *The Wild Bunch* (1969). The massacre results in scores of bodies, which attract a number of Turkey Vultures. Peckinpah included one beautiful shot of a row of vultures perched on a wall, sunning themselves with their wings spread. Other birds perch on the ground among the bodies, and, in one close-up, perched on a corpse. After using images of the birds to drive home the massed death, Peckinpah depicts a group of bounty hunters stripping the dead, even as the vultures are perched among them; he effectively likens human scavengers to avian scavengers.

The most noteworthy recent development in vulturine cinema has seen the birds play a prominent role in ethnography - specifically the kind of ethnography that sensationalizes rituals in which corpses are fed to vultures. Three films released during the 1980s and 90s - *Dao ma zei* ("The Horse Thief") (1986), *Kundun* (1997), and *Himalaya* (2000) - take place in the Buddhist region of the Himalayas, and each features Buddhist *ja-gor*, sky burials, as part of their respective narratives. Despite the similar settings, each film tells a drastically different story, and each was filmed in different locations and circumstances: *The Horse Thief* was shot in northern China with a Mandarin-Chinese speaking cast and crew, *Himalaya* was filmed in Nepal by a French crew with a Nepalese cast, and *Kundun* was filmed by an American director in South America (due to its volatile political content, it could not be filmed in Tibet) with a mostly Tibetan expatriate cast.

*Kundun*, a cinematic biography of the current Dalai Lama, uses its sky burial as the turning point of the film. The burial is held for the Dalai Lama's father, who died when his son was in early adolescence, after they boy had been identified as a reincarnation of the Dalai Lama but before he was enthroned as the ruler of Tibet. Martin Scorsese's direction presents shots of the vultures gathering on the ground and in the air during the sky burial, and leaves little to the imagination as the *rogyapas* butcher the corpse. As the ritual takes place, the Chinese demands upon the Tibetan government (including the stipulation that Tibet is legally part of China) are read over scenes of the griffons devouring the Dalai Lama's father. All the while, Philip Glass's ominous-sounding, minor-key music is heard in the background. The entire scene is clearly meant to be a doom-laden herald of the downfall of Tibet.

The Buddhist *ja-gor* ritual is presented very differently in *Himalaya*. The sky burial in that film is held for a Lhakpa, the leader of a Nepalese village, who paid the price of death for taking a shortcut while on a salt caravan, and who died before the beginning of the film; he is never actually seen onscreen, and his burial takes place little more than ten minutes into the movie. Unlike the sky burial in *Kundun*, in *Himalaya* the ritual procession of the corpse bearers from the house to the butchering ground of the *mandala* is shown, followed by exquisite shots of soaring Lammergeiers and Himalayan Griffons. The dismemberment of the body is only implied, not actually shown, and is followed by shots of the vultures eating chunks of meat. The whole sequence takes only about two minutes; from



a narrative standpoint it could probably be cut from the film without losing any essential details of the story. Yet it serves as more than window dressing, for it drives home to the audience, very early in the film, that this is a culture far removed from theirs.

The sky burials in *The Horse Thief* are presented still more differently. *Kundun* and *Himalaya* were both clearly meant for an international audience; *The Horse Thief* probably wasn't. Anyone unfamiliar with Himalayan Buddhist culture who attempts to watch it will find themselves dropped in the deep end; its dialogue is minimal, and it makes no effort to explain the numerous esoteric rituals that it depicts to audiences who will likely find them bizarre and confounding. The film opens with shots of Himalayan Griffons flying in a cloudless blue sky above an extravagantly decorated pavilion, and then shows the birds gathering around something. The human corpse that is the object of their attentions is never seen, although several of the vultures have conspicuously bloody heads. The title of the film is then superimposed over the scene; the viewer never learns for whom this sky burial was held.

The central character of the film is Norbu, a professional horse thief with a wife and small child. When two members of his clan are discussing the death of the father of the clan's headman, one mentions that her ne'er-do-well son won't go to heaven when he dies, and neither will Norbu, because "the vultures won't touch evil." The sky burial of the headman's father takes place about a quarter of the way into the film, at the same pavilion shown in the opening sequence, although the sky is now overcast. The depiction is more explicit this time around; a bloodied hunk of flesh vaguely recognizable as a human corpse is seen, ringed with a sedate circle of feeding Griffons. Only a few yards away from the vultures, a lama methodically plays a drum; neither he nor the vultures seem to be interested in each other. Norbu, the horse thief, watches the ritual from a distance, with an inscrutable expression on his face.

As *The Horse Thief* draws to a close, Norbu is wounded by gunfire while stealing a horse, with his wife and child in tow. He sends them away; then the scene lapses to a shot of bloody footprints and a sword, recognizable as Norbu's, dropped in the snow. The flying Griffons are seen again, then the sky burial pavilion; and then the film ends, on a note that seems both final and yet ambiguous. Is this meant to be a lead-in to the sky burial that opened the film, as though the entire film was intended to be cyclical? Or was the opening sky burial meant merely to foreshadow Norbu's fate? The shots of vultures used to frame the film make one wonder if the director of *The Horse Thief* was familiar with *The Bridge on the River Kwai*. Regardless, there's certainly no intent in this film to make a spectacle out of the sky burials, or to paint them as more grotesque and strange than any other rituals. In the world of *The Horse Thief*, it seems that sky burials are just part of existence, and a natural outcome of life in a harsh and sometimes violent land.

The most inspired cinematic casting of vultures was found not in any live-action film, but in one of the first feature-length animated films, Walt Disney's *Snow White and The Seven Dwarfs* (1937). First-time viewers familiar only with the Disney company's more recent and saccharine concoctions are often shocked by how dark, violent, and menacing *Snow White* is. *Snow White's* vultures are worthy of description at length, because they are remarkably well characterized and true to mythology, and fascinating because of it. The vultures don't appear for the first time until the last quarter of the movie, but are impossible to miss when they arrive. As the camera follows the evil Queen, disguised as an old peddler woman and talking to herself about her brilliant plot to dispose of Snow White, we see first a pair of unmistakable hunch-shouldered shadows, then the vultures themselves; and what vultures they are. In a film filled with cute, friendly, and non-threatening woodland creatures, the vultures are impressively sinister in appearance, with black and gray

plumage, flesh-colored legs and heads, and blood-red eyes and bill tips. The carrion birds are perched in a tree near the Queen's path; as she passes beneath them, they look down at her, their permanent grins grow wider, and they take off and follow the Queen. Only their shadows are seen on the ground as the Queen walks off to the Seven Dwarfs' cottage.

The vultures are again seen dropping out of the sky into a tree outside of the Seven Dwarfs' cottage, as the disguised Queen attempts to sell Snow White a poisoned apple. Snow White suspects no ill intent on the Queen's part; but her animal friends see the vultures looking into the cottage with obvious anticipation. Deducing from the vultures' presence that the old peddler intends to harm Snow White, the animals attack the disguised Queen; but Snow White, still unsuspecting, drives them out of the cottage. The animals then go to find the dwarfs for help; while they are gone, the Queen convinces Snow White to take a bite from the poisoned apple, and she collapses. Meanwhile, Snow White's animal friends have managed to communicate to the Dwarfs that Snow White is in danger, and they and the Dwarfs have rushed back to the cottage with all possible haste. The Dwarfs arrive too late to stop Snow White from biting the apple, but just soon enough to catch the disguised Queen at their cottage. Seeing them, she flees, and they chase her up to a high precipice; the vultures follow all of them, as a thunderstorm breaks over the scene. Soon enough, the Queen is trapped on the edge of a precipice, and the vultures perch directly above her and gape broadly as she attempts to push a huge boulder onto the heads of the pursuing Dwarfs. Before she can, a bolt of lightning shatters her precarious foothold, and she falls into the abyss in a long, screaming (but unseen) plummet. The two vultures are seen following her trajectory with their eyes, which bulge noticeably after a few seconds. This is the only indication that the Queen has hit the ground; there are no sounds suggesting the impact. As the Dwarfs crowd at the edge of the precipice, trying to see what has become of their nemesis, the vultures take off and begin descending in the rain, circling downwards in a slow, languid spiral. The scene fades out on the turning vultures; there can be no doubt that the Queen is dead.

Even aside from the sheer drama of all of this, *Snow White's* vultures are fascinating on several levels. First of all, contrary to expectations, the vultures are not depicted as villains; indeed, their role is beyond any question of good and evil. They aren't interested in helping or hindering either Snow White and the Dwarfs, or the Queen. It is their presence alone that alerts Snow White's animal friends to the murderous intentions of the old peddler woman, and which spurs them to first attack the disguised witch and then to seek the assistance of the Dwarfs. If it wasn't for the vultures, the Queen might well have escaped the scene of her crime scot-free. And yet, though it at first seemed obvious that the vultures intended to feed on the results of the Queen's handiwork, they show neither surprise nor hesitation when the Queen falls to her death after being chased to the edge of a cliff by the Dwarfs. Watching them, one gets an unshakeable feeling that they *knew*, all along, whose corpse they would end up consuming. This is a striking and surprisingly disturbing reiteration of the ancient beliefs that vultures dream of or otherwise know about the locations of carcasses, even before they are dead; and that they may even be able to cause people to die. It should be mentioned that none of this is found in the Brothers Grimm fairy tale that this film was based on; there are no vultures whatsoever in the original story. The birds were expressly created for the movie, by someone on the story staff who was clearly familiar with their heraldic power and lethal ambiguity. Although the vultures are on screen for only a few minutes of the film, they are memorable and highly impressive creations; they set a high mark for cinematic treatment of the birds that has never been equaled, let alone exceeded.

Unfortunately, Disney's animation studio failed to build upon this promising foundation by creating any other great vulturine characters. Vultures appeared as minor characters in at least five

other Disney animated features; but all of these animated vultures are cipher-like figures, largely characterless and entirely forgettable. The characters are so bland that their roles could quite capably have been filled by most any other specimen of animated animal, since none of these cartoons took advantage of the vulture's capabilities to induce dread and uneasiness in the audience, as *Snow White* did. By the time of *The Lion King* (1995), Disney vultures had been reduced to the aforementioned western movie clichés, seen circling over the forlorn title character shortly before serving as the butt of a dumb joke in which they are referred to as “buzzards” (by “African” characters); and if that isn't an example of cultural ignorance at its most subtly obnoxious, then I don't know what is.

Still, Disney must be credited for giving roles to vultures, however lousy they usually were. By contrast, the vulturine presence in fictional television - excepting the westerns popular on American TV in the 50s and early 60s, of course - is nearly nonexistent. Vultures are only prominent in wildlife documentaries, the perennial staples of public television stations and education-themed cable channels. It's no exaggeration to say that the citizens of industrialized nations are, broadly speaking, far more familiar with vultures from wildlife documentaries than from personal observation of wild vultures in their own lands (if there are any). Many Americans are unable to recognize their native Turkey Vultures as “vultures,” even if the birds are close enough for their naked red heads to be seen; but these same Americans will immediately identify televised vultures as what they are. This faux-familiarity can result in problems for vultures in the real world, because wildlife documentaries are never 100% accurate depictions of nature as it really is. (Though if they were, they would be exceedingly depressing, boring, and repetitive.) It's largely because of these programs that wild vultures are popularly thought of as creatures of no great ecological importance, as carnivorous parasites that depend on the kills of “real predators” to provide their food.

The chain of events that has led to vultures being thought of as predators' hangers-on goes something like this: A filmmaker or producer decides to make a wildlife documentary. During the planning stages, it is decided to film the documentary in the one place on Earth where large wild mammals are most easily observed: namely, the plains of Africa. Upon arriving in Africa, the filmmakers focus the majority of their efforts on the large predators whose popularity with viewers is tried and true; usually Lions, sometimes Cheetahs or Leopards, rarely Spotted Hyenas, Wild Dogs, or jackals. As the predators are the stars of the show, vultures are encountered during filming *only* when they gather around predators' kills, never when they gather around the animals dead of other causes that comprise the vast majority of their food. When the wildlife documentary is released, vultures are seen (if at all) only as parasites of large predators; and, finally, the viewing audience of the documentary sees the carrion birds gathering around kills, profiting from the labors of the predators, and assumes that this must be the natural state of affairs for vultures; after all, the documentary is “non-fiction.”

Regardless of doubt about their professed objectiveness and accuracy, it is indisputable that nature documentaries have spread the televised images of vultures far and wide. Thanks to them (and, to a lesser extent, to vultures in zoos), almost everyone thinks that they know what a vulture looks like. But relatively few people are able to correctly identify an actual wild vulture in flight. This curious veneer of superficial knowledge laid over deep ignorance results in situations in which vultures are seen where there are none; and also frequently leads to vultures being mistaken for something else, or to gross exaggeration of their dimensions. Sometimes the birds even take on a supernatural and unearthly character, in a modern world that tends to pride itself on its freedom from superstitions and irrational fears.



We've seen throughout this book that even among vulture experts, there are still many areas of mystery regarding the birds, and some elementary questions about them that remain unanswered. It goes without saying that, among laypeople, the birds are more mysterious still; and when areas blank of knowledge surround any subject, they are prone to be filled in with a mixture of exaggeration, half-truths, and fabrication, which fall into the realm of urban and rural legends and occult beliefs. A shady, semi-legitimate branch of biological science, known as *cryptozoology*, is devoted to the study and unraveling of these legends and beliefs, which often involve creatures that are seemingly unknown to science, such as Bigfoot, sea serpents, and the Loch Ness Monster. In the cryptozoological community, unexplained encounters with vultures and other large, mysterious birds are dubbed "Big Bird stories." Just as there are distinct categories of UFO encounters, the Big Bird stories, which almost inevitably involve either vultures or eagles, can be broadly divided into two categories: Giant Raptor Observed At Distance Sightings (GROADS), and Giant Raptor Attacks Baby-or-child Stories (GRABS). And I do mean *giant*; it seems that the minimum acceptable size for a bird in one of these tales is one with a seven or eight-foot (2.2 or 2.5 m) wingspan, and most are claimed to be far larger. This may be because a smaller bird is more likely to be dismissed by skeptics as something mundane, or because of the natural human tendency to exaggerate, or both.

Although there are fewer reported incidents of GRABS than of GROADS, the GRABS are undoubtedly the more dramatic and attention-grabbing of the two categories; indeed, they've captured the imaginations of cultures around the world since time immemorial. We already saw [in Chapter 7](#) that baby-snatching formed a major part of the beliefs surrounding the Lammergeier in Europe, to the extent that GRABS were cited as logical justification for exterminating the birds. Several large eagles have been similarly accused, especially the White-tailed Sea-eagle and the Golden Eagle. One of the weirder and more bemoaned tasks that ornithologists have taken on is that of repudiating these stories; which they have done with vehemence, some going so far as to claim that it's physically impossible for even the largest raptor to carry off an infant.<sup>[2]</sup> Yet the GRABS occur in just about every culture that shares space with large raptors, including some that could hardly have been much influenced by the stories of outsiders. In the industrialized world, purported incidents of vultures or eagles attacking and carrying off children have become quite rare in the past century, but they do appear in the more outlandish tabloids and in urban or rural legend from time to time. Most of these are badly documented and easily written off, but there are exceptions, especially from Europe and North America. The story of Lammergeier-Anni [recounted in Chapter 7](#) is certainly detailed and plausible enough to accept as probable if not definite fact, although the modern scientific community still denies the factuality of the incident and likely always will. One of the best-documented GRABS over the past century, extensively investigated by the cryptozoologist Karl Shuker, occurred in Illinois during the summer of 1977.

On July 25 of that year, three young boys, including 10-year-old Marlon Lowe, were playing in a backyard in the town of Lawndale, when two huge blackish-colored birds swooped down from the sky and, according to eyewitnesses, launched an attack on the children. The first boy pursued by the birds dove into a swimming pool before they reached him. The birds immediately shifted their focus to Lowe, and, in the words of Shuker, "Even as he was still running, he felt the talons of one of the birds seizing the shoulder straps of his singlet-like sleeveless shirt and was promptly hauled up about 2 ft [0.6 m] into the air by his winged abductor." Lowe was of course screaming while he was attacked; his cries alerted his mother and several other nearby adults, who came running only to see a creature described as "a black vulture-like bird, with a large curved beak, a white ruff around its long neck, and a wingspan estimated at 8-10 ft [2.5-3 m]" carry Marlon about 10 yards (9 m) before finally dropping

the 65-pound (29.5 kg) boy and flying, with its companion, towards the trees surrounding the nearby Kickapoo Creek, where the two huge birds soon disappeared. Ruth Lowe, Marlon's mother, called the police immediately after the birds left, but since Marlon was uninjured (physically, at least) and his assailants were nowhere to be found, the whole matter was dropped, except by the cryptozoological community. Marlon's hair turned a very premature gray after his ordeal, and he and his family were frequently ridiculed and subjected to pranks on the level of an eagle carcass left on their doorstep; but since they continued to maintain their story in spite of all this, there's little reason to think that they deliberately staged the incident as a hoax.

As Shuker noted, a pair of escaped large Old World vultures, such as Eurasian Griffons, present the most likely explanation for the attack on Marlon Lowe; they are the only birds that jibe reasonably well with both the birds' appearance and their ability to snatch and temporarily lift something heavy with their talons.<sup>[8]</sup> However, Ruth Lowe thought that the birds most resembled Andean Condors. At first glance, that identification seems impossible, because like all other New World vultures, it's physically impossible for condors to even grasp their feet, let alone carry heavy objects in them. But the account of the attack, as told by the eyewitnesses, doesn't suggest that the vulture grasped Lowe by the body; it merely "grabbed" part of his shirt, and hoisted him aloft with it. Might the bird have accidentally tangled its feet in the straps of Marlon's shirt as it passed over him, and inadvertently carried him aloft for a few moments?

The other broad category of Big Bird stories, that of the GROADS, is rather less dramatic, but far more common; there are scores of sightings of giant unidentifiable raptors every year and all over the world, although such sightings rarely attract more than local media attention. Among land birds, the vultures have few rivals in their ability to travel great distances and appear in areas where they're normally unknown. Vultures naturally wander to find food – they are "wander scavengers," after all – and young birds that haven't yet reached breeding age also wander to find suitable



territories not yet claimed by adults. Many outlying vulture populations, such as the isolated Turkey Vultures in the Falkland Islands and the Lammergeiers of South Africa, probably originated with a few venturesome juveniles looking for new spaces to call home. The very existence of the Egyptian Vulture and Lammergeier may be the result of New World ancestors wandering into the Old World, as we saw [in Chapter 2](#). The Egyptian Vulture is still a notably intrepid bird when it comes to travel. There are (or were, until recently) breeding populations of Egyptians in the Canary and Cape Verde Islands of the Atlantic Ocean, which are about 62 miles (100 km) and 394 miles (630 km), respectively, from the African mainland. At least one wandering Egyptian has been seen in the Madeira archipelago, some 250 miles (400 km) north of the Canaries; and in 1932, a young Egyptian Vulture was shot in the Azores, a group of small volcanic islands some 930 miles (1,500 km) from the European mainland. That latter bird made it about a third of the way across the Atlantic!<sup>[9]</sup>

In the Caribbean Sea, Turkey Vultures were native to some of the larger islands, such as Cuba and Jamaica, when Columbus first arrived in the late 15<sup>th</sup> century; but there apparently were none on



either Hispaniola (the island now occupied by Haiti and the Dominican Republic) or Puerto Rico prior to the late 19<sup>th</sup> century. In 1927, the American ornithologist Alexander Wetmore claimed, without providing any supporting evidence, that around 1880 Turkey Vultures were deliberately introduced to Puerto Rico from Cuba by the Spanish imperial government which then ruled both islands.<sup>[10]</sup> There appear

to be no records of such a project being undertaken,<sup>[11]</sup> or even a clear rationale of why such an introduction would have taken place. Similar claims have been made for Hispaniola, where the Turkey Vulture was supposedly introduced in the 1930s,<sup>[12]</sup> and again there is no evidence that a deliberate introduction took place. These claims do something of a disservice to the Turkey Vulture, which like the Egyptian Vulture is a bird well known for its ability both to make sea crossings and to turn up in unexpected places. In fact, the Vultures have commonly been recorded on islands in the Caribbean where they've never been known to breed, including some that are considerably more isolated from the nearest established Vulture populations than Puerto Rico and Hispaniola are from Cuba. Asserting that the Turkeys could only have colonized those two islands with explicit human assistance is thus a rather recondite explanation for what was probably a simple opportunistic expansion in range by a few birds, which upon discovering new lands that were free both of their own kind and the more aggressive Black Vultures, and where food (in the form of recently introduced livestock) was in plentiful supply, elected to stay and breed for the long term. Although the Puerto



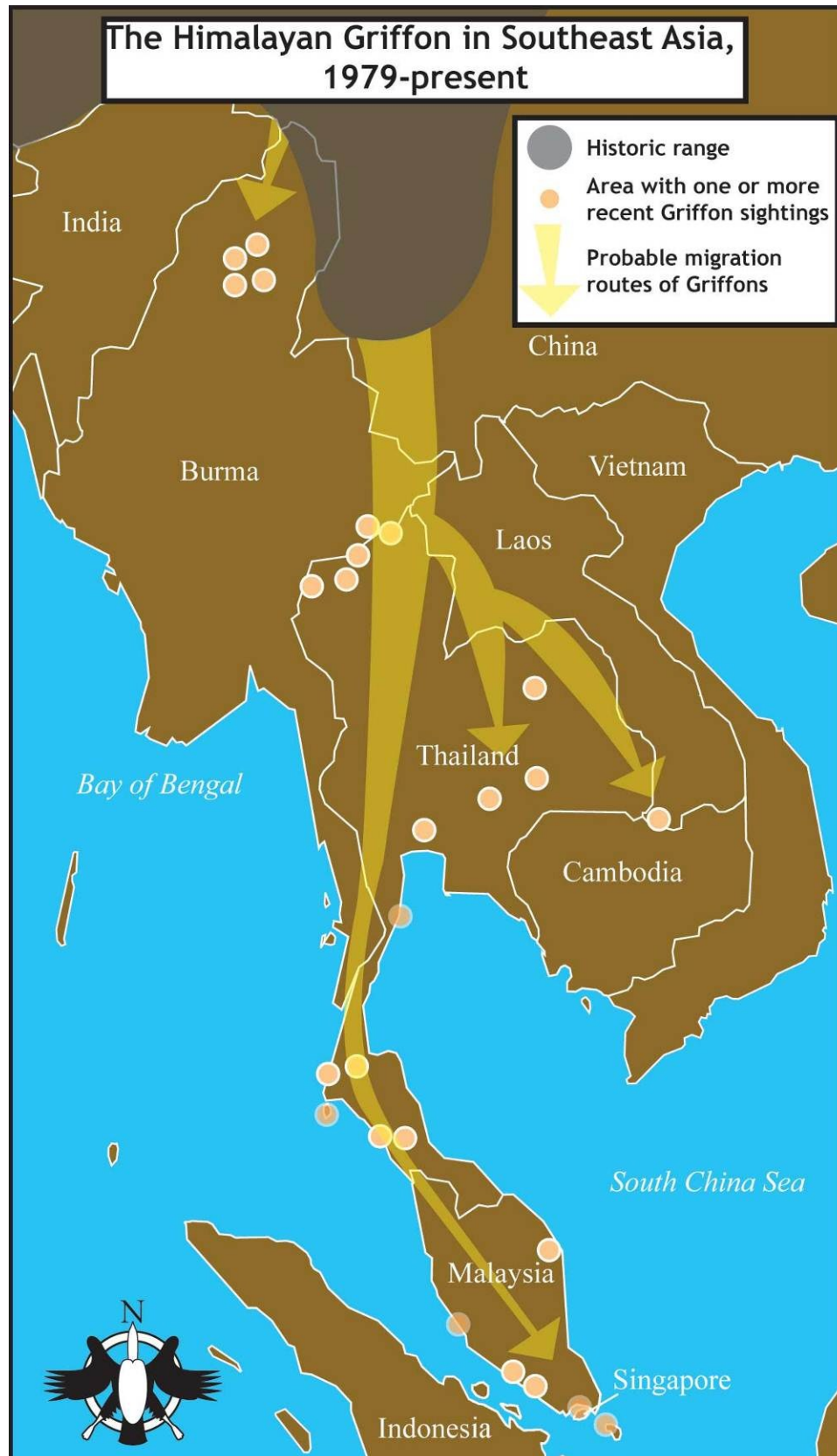
Rican population appears to still be restricted to the western portion of the island, the Hispaniolan vultures have now established themselves throughout the north of the Dominican Republic, with some birds traveling as far west as central Haiti. <sup>[13]</sup>

Although the sea journeys of the Turkey and Egyptian Vultures are impressive, the undoubted champion traveler on land is the largest of the Old World Vultures, the *Monk*. Aside from its impressive migrations in East Asia, this species has been sighted at least once in almost every nation and region in South Asia where it doesn't normally occur, from the Malay Peninsula<sup>[14]</sup> to lowland India<sup>[15]</sup> to southern China<sup>[16]</sup> to the island of Taiwan<sup>[17]</sup> to, astoundingly, the Philippines archipelago.<sup>[18]</sup> It's the only species of vulture known to have ever made it to Japan, where the *Kuro-hagewashi* ("Black Bald Eagle") appears, on average, once or twice per decade in the form of wandering juvenile birds, which probably crossed the sea from Korea.<sup>[19]</sup> Many of these Monk Vulture sightings were correlated with a temporary abundance of food in the form of local warfare (as we'll see [in the next chapter](#)), but not all were. Such large and hungry birds can't survive long without sizable sources of food, so most of these wanderers probably ended up starved in foreign lands. But there may be occasional exceptions; in the winter of 1982-83, a Monk Vulture turned up in the Ibaraki Prefecture of Japan, and survived for the entire winter by eating discarded Chicken carcasses at a poultry farm.<sup>[20]</sup> Had it been joined by another Monk of the opposite sex, it might even have attempted to nest there, and Japan would have been added to the vast natural range of the Monks.

The unlikely of vulturine travelers would have to be the Himalayan Griffon. The Monk Vulture's closest rival for the title of world's largest raptor, this species is normally found only in the cold, high mountains and steppes of Central Asia. It's known to migrate altitudinally – that is, some birds fly to lower altitudes during the winter – but it was otherwise thought to be essentially sedentary, never venturing out to the hot lowlands to the south and east. At least, that was the case until the past few decades, when a number of Griffons have astonished naturalists by appearing throughout Southeast Asia, as far south as Bintain Island in Indonesia. Beginning with a single Griffon caught in Malaysia in 1979, there were more than 30 reports of Himalayan Griffons seen in Southeast Asia, and many sightings were of groups of the huge vultures. With the exceptions of Vietnam and Laos, the Griffons have now been seen in every single nation in the region. A few Himalayan Griffons have also been seen in South Korea; as in Southeast Asia, these mark the first-ever Griffons reported from that area.<sup>[21]</sup> Aside from Burma and northern Thailand, which are fairly mountainous, these areas are overwhelmingly low in altitude and tropical in climate, and the pristine natural areas that remain are mostly covered with rainforest. In ecological terms, the appearance of Himalayan Griffons in such places is about as likely as the appearance of penguins in California's Death Valley.

At first, these Griffons were thought to have made their way to Southeast Asia with the aid of humans. Animal dealers and traditional medicine markets in Southeast Asia commonly capture and sell rare and exotic animals, sometimes while still alive, and including occasional vultures. If a few Griffons had been captured and later escaped during exhibition or transport, they might well have accounted for some of these improbable sightings. But none of the Himalayan Griffons photographed or captured in Southeast Asia were found to have any marks of handling or captivity,<sup>[22]</sup> and it's now thought that these birds are voluntarily flying into Southeast Asia straight from the Himalayas. Almost all of the records date from what would be the winter months in the Griffons' usual range, from October to March, indicating that the vultures are simply extending their usual migrations.<sup>[23]</sup> The concentrations of these huge, mysterious vultures have been especially notable in the city-state of Singapore, at the far southern tip of the Malay Peninsula. The first Himalayan Griffons recorded in Singapore were four young birds in December 1989, at least one of which was captured alive and still resides in a zoo on the island. Another group of nine was sighted at nature reserve named Bukit Timah in January 1992. The locale was oddly appropriate for the birds, as Bukit Timah is the highest point on the island – though at a mere 165 meters (542 ft), it isn't exactly a cloud-scraping Himalayan peak. There were other sporadic sightings of young Griffons in Singapore throughout the 1990s and 2000s, mostly of single birds or pairs, and the number of reports is steadily increasing.<sup>[24]</sup>

Large mammal carcasses are few and far between in most of Southeast Asia, and the Griffons undoubtedly have trouble finding enough food there. The Griffons that have made it to Singapore have been described as “exhausted and starved”



upon arrival, and several were captured after being found unable to fly, probably due to exhaustion from malnutrition.<sup>[25]</sup> However, as they're much larger than the local lowland vultures, even inexperienced young Himalayan Griffons are easily able to monopolize whatever food sources they can find. The few Himalayan Griffons seen in Cambodia all appeared near a supplementary feeding station, intended for use by the local vultures.<sup>[26]</sup> With so few carcasses to eat, young Griffons that fly south into the Malay Peninsula may simply keep going, as far and as long as they can – even to Singapore or Indonesia, where a young Griffon was captured while attempting to eat dead pigs on a farm. After crossing almost 50 km (31 mi) of open water. Anything for a meal, indeed. It isn't presently known what proportion of the Himalayan Griffon population is traveling to Southeast Asia, though the wide temporal and geographic range of the sightings suggests that there are very substantial numbers involved, and that the Griffons that have been recorded represent only the tip of the iceberg.

The question of just why the Griffons are undertaking this remarkable migration at this point in time has yet to be answered. [Recent events](#) that have drastically impacted the vulture populations of the Indian subcontinent and surrounding areas may have something to do with it, but that's no more than a guess based on the coincidental timing. A more prosaic possibility is that the Griffons in the Himalayas and the Tibetan Plateau are no longer able to find enough food. Tibet has changed drastically from the largely pastoral society it was just a few decades ago; the area is becoming increasingly heavily populated and industrialized, and wildlife can no longer consider the area a relatively safe haven from human persecution. In particular, two of the Tibetan Plateau's formerly numerous wild herbivores, the Tibetan Gazelle and the Chiru or Tibetan Antelope, have declined drastically due to hunting, competition with livestock, and general human disturbance.<sup>[27]</sup> However, recent studies of the Griffons' diet in the Tibetan Plateau indicate that wild mammals of any kind comprise only a tiny fraction of their food supply; the vast majority of their food consists of Domestic Yak carcasses, and even the human corpses fed to the Griffons in sky burials are a more substantial source of food than wild mammals.<sup>[28]</sup> A more important factor may be the effects of recent climate change in the Tibetan Plateau; or, more specifically, the response of the Chinese government to these changes. Not only are the thousands of glaciers in the area melting at an unprecedented rate, but the generally higher temperatures have turned many formerly fertile grasslands into deserts. Tibet's nomadic *drokba* herders can no longer use these lands for grazing, and the government's response has been to forcibly relocate the herders in vast numbers<sup>[29]</sup> – along with their animals, the Griffons' primary food source.

Regardless of the proximate causes of the Himalayan Griffons' remarkable migration, the overall impression gained from these events is that something is encouraging the Griffons to move away from their old ranges in Central Asia; and they may have not be alone in this. Young Eurasian Griffons have migrated from Europe to Africa for millennia; but since the 1990s, there have been surprising reports of small numbers of [Rüppell's Griffons](#), normally exclusively African birds, seen in Spain and Portugal. The Rüppell's are believed to have crossed the Strait of Gibraltar with Eurasian Griffons returning to Europe;<sup>[30]</sup> but no one can say for certain why these normally exclusively African birds are trekking to Europe. A possible cause for this odd reverse-migration lies in the fate of the Griffons that are still in Africa. The Rüppell's Griffon has suffered drastic declines throughout most of Africa during the past couple of decades; and West Africa, the portion of the species' range closest to Europe, has seen the worst of it. The species is now thought to be extinct in Nigeria due to killing for vulture parts used in sorcery and witchcraft, and the Griffons have also declined to near-nonexistence in Mali, Burkina Faso, and Niger due to shooting, poisoning, and pilfering of their eggs and young.<sup>[31]</sup>



Griffons are known to communicate amongst themselves at their colonies, about both food sources<sup>[32]</sup> and potential threats.<sup>[33]</sup> Like the Rüppell's, the Himalayan Griffon has suffered severe persecution – particularly in Tibet, where the Chinese government engaged in organized, systematic killing of vultures from the 1970s to the late 90s, as we saw [in Chapter 4](#). Griffons of other species are known to practice efficient communication in their colonies by passing along the locations of food sources, and they might do the same about areas that they've discovered are dangerous. These unusual movements by griffons may be the logical result of the griffons communicating amongst themselves that some formerly safe areas have recently become dangerous, such as the Tibetan Plateau and lowland India for the Himalayan Griffons, and most of West Africa for the Rüppell's Griffons. Informed of the dangers, the griffons would logically attempt to find new areas to colonize. The griffons may even be communicating between species; the Eurasian Griffons migrating to Africa from Europe could “tell” the Rüppell's Griffons that Europe is safe, and so the latter birds follow the former back to Europe. Such a communicative strategy may pay off for the Rüppell's Griffons – their chances are certainly better in Spain than in West Africa - but the incredible journeys of the Himalayan Griffons are likely to be one-way trips. The prospects of survival for such large vultures in most of Southeast Asia are grim, and they'll most likely starve to death if they aren't killed or captured by people first. Despite the prevalence of Buddhism throughout the region, the largely positive or neutral opinions of vultures found in Tibet and surrounding areas are noticeably absent in Southeast Asia. Attitudes towards vultures in Burma, in particular, are very hostile, with many Burmese electing to kill the birds on sight whenever and wherever they appear.<sup>[34]</sup>

Myths and legends often originate from experiences of unusual events – such as the seemingly inexplicable appearance of numbers of giant vultures from out of nowhere. It remains to be seen if this sudden influx of Himalayan Griffons will create any new myths or legends among the people of Southeast Asia. But imagine for a moment if such an influx occurred among people who were not well-informed about the larger world, who were largely ignorant about anything more than a few days' travel away from their homes, and who depended on the natural world, and interpretations of its signs and portents, for their very survival. If huge, mysterious, but obviously carnivorous and ominous-looking birds suddenly appeared among such people, it can be safely predicted that they would tell stories about the bizarre creatures for many years. And so they have; many mythical flying animals, such as the Roc of the Near East and the Shade Birds of China (so-called because they shade entire villages when airborne), are probably based in part on sightings of wandering vultures by people normally unfamiliar with the birds. For obvious reasons, it cannot be *proved* that sightings of wandering vultures, or of any real birds, lay at the root of these stories, any more than it can be proved that the Thunderbirds of the pre-Columbian Amerindians were based on real Turkey Vultures or California Condors. However, the vultures are certainly the most likely candidates, and there's plenty of evidence that the carrion birds are still serving as the raw material for mythmaking even today. A cursory internet search will reveal hundreds if not thousands of news stories from around the globe that fall into both the GRABS and GROADS categories, and such stories remain a staple of tabloids and (allegedly) non-fictional paperback books intent on cramming as much cheap and unverifiable sensationalism as possible into their pages.

We need not detain ourselves with these here; but as long as we're discussing vultures out-of-place, it's interesting to note that over the past couple of centuries, *condor* has apparently become the default term for any exceptionally large, unfamiliar bird seen anywhere by anyone who knows the word. Although there are not and never have been any wild condors in the Old World, it's quite easy to find references to “condors” seen in various parts of Europe, Asia, and Africa – sometimes even by

supposedly reputable authorities on birds, as we saw [in Chapter 8](#). During World War II, American pilots flying bombers and transport planes in the China-Burma-India Theater frequently sighted, and occasionally crashed into, large birds that they called “condors,” which were reputed to have wingspans of over 14 feet (4.3 m)!<sup>[35]</sup> The birds were most likely large vultures, perhaps of the then-common White-rump species (which has a maximum wingspan of about 7 feet (2.2 m)); but the pilots’ misidentification can be excused, as the overused *vulture* and the American slang term *buzzard* simply don’t evoke great size and potential threat with the power of *condor*.

While journeying through northern India in the late 1820s, the British traveler Reginald Heber encountered many stories about large, mysterious vulturine birds, which reputedly sometimes entered cities and villages to carry off children. In the city of Meerut, he heard what he considered a reliable second-hand description of such a bird from a lieutenant of the British Army, presumably after the bird had been killed. The bird in question was probably a juvenile Monk Vulture, since he describes it as of “a deep black colour,” but Heber thought that it was a “condor” due to “the bareness of its neck” and “from its size, which exceeds that of any eagle of which I had heard.” He mentioned that another lieutenant had shot one “which measured thirteen feet [4 m] between the tips of its extended wings [!] and had talons eight inches [20 cm] long [!!]” – further, this bird “could, he was sure, have carried up a very well-grown boy.” Heber went on to suggest that this monstrous bird was one and the same as the elephant-eating Roc of the *Arabian Nights* tales, because, “In Sindbad’s way of telling a story, so formidable an animal might be easily magnified into all which that ingenious voyager has handed down to us concerning his giant bird.”<sup>[36]</sup> He seems to have been quite unaware that he and his informants were doing some avian magnification of their own.

Interestingly enough, GROADS seem to have been nearly nonexistent in North America – home to the California Condor – until the late 19<sup>th</sup> century. In 1870, a creature described as “a monster bird, something like the condor of Sinbad the Sailor,”<sup>[37]</sup> was shot, wounded, and taken into captivity by a farmer in Kentucky. A contemporary press account states that, “On measurement, the bird proved to be seven feet [2.2 m] from tip to tip. It was of a black color, and both similar and dissimilar in many ways, to an eagle.” GROADS were far more common during the 20<sup>th</sup> century. There were several reported sightings of a bird that looked like a condor and was reputed to be as large as a light airplane along the Illinois-Missouri border in 1948. In Puerto Rico, there was an epidemic of unexplained deaths among domestic animals during 1975, and several people claimed to be awakened by a loud screech and a sound like the flapping of enormous wings. This all happened at night, but there were also daytime sightings of what was described as a “whitish-colored gigantic condor or vulture.” In October of that year, residents of the town of Walnut Creek in California were treated to the sight of huge bird, more than five feet (1.5 m) high at rest and with a vulturine head, that spread 15-foot (4.5 m) wings and flew away shortly after it was spotted. At around the same time, a number of people in the nearby East Bay area saw a giant vulture-like bird sitting on a rooftop.<sup>[38]</sup> Thunderbird reports are especially common from Pennsylvania, and have persisted there since at least 1892, when a lumberjack there claimed that he saw a flock of “giant buzzards” near his camp.<sup>[39]</sup>

Modern cryptozoologists often call the giant vulture-like birds in North American GRABS and GROADS “thunderbirds,” in a rather misguided effort to establish a tenuous connection with the mythical beings of Amerindian folklore.<sup>[40]</sup> This is really a label of convenience, since the typical modern thunderbird sightings bears little resemblance to the Amerindian Thunderbirds (which, as described in the folktales, often don’t seem to be birds at all), other than being unusually large. Almost every reported sighting of a modern thunderbird likens the creature to a gigantic vulture, even when it has markedly unvulturelike characteristics, such as a fully feathered head, all-white

plumage, or long, narrow wings. Although the thunderbirds have long been a staple of cryptozoologists, they haven't generated much interest among professional ornithologists, primarily because few of the people who have claimed to see them have been experienced birdwatchers, and also because there seems to be no conceivable food source for such enormous carnivorous birds in most of the areas where they were reported.<sup>[41]</sup> Furthermore, many of the accounts contain behavior that is unknown in any real birds, vulturine or otherwise; and some descriptions include actions that are physically impossible.

Nevertheless, the stories persist; and while many GROADS were undoubtedly made up or hallucinated, some of them stories must stem from encounters with the two typical vultures of North America. As common as they are, an unexpected close-up encounter with a Turkey or Black Vulture can still be very startling, especially to someone unused to seeing such a bird up close. With its average six-foot (1.8 m) wingspan, a Turkey Vulture is one of the largest wild birds an average American is likely to encounter, and the mental impact of seeing an innocuous-looking Chicken-sized bird abruptly spread wings that stretch wider than the head-to-foot height of its startled observer, and then sail away on them, should not be understated. Other GROADS are likely based on exotic vultures that have escaped from captivity; for example, a Big Bird reported in Ohio in 1972 turned out to be nothing more than an escaped African White-backed Vulture.<sup>[42]</sup> Vultures are fairly common not just in reputable zoos, but also in roadside and carnival menageries; and there are also some of the birds in private collections. Easily obtained (for the most part), hardy, and not particularly demanding of care, vultures are guaranteed to draw attention from their sinister reputations - not least because their promoters can plausibly present them as "man-eaters." White-backed Vultures aren't particularly large or striking as vultures go, and yet they're still far enough beyond the frame of reference for most people in North America that the appearance of one in the wild can be shocking.

Escaped vulture reports are especially common in Britain, where the lack of any native vultures combined with a large and active birdwatching contingent and a news media eager to pounce on any unusual story has resulted in frequent, faintly ludicrous stories of monster carrion birds haunting the skies of Blighty. One such exotic vulture was seen in Bridgend, Wales in the summer of 2010. The escaped bird was a small vulture; a Hooded, native to Africa, judging from the photo that accompanied the report. To the West Africans who live on familiar terms with such vultures every day, the birds are almost as innocuous as pigeons or crows; but in the British press, it was described as a "giant bird of prey" that was "around 3ft (91cm) tall" – twice its actual size. The mere presence of the Vulture was so potentially alarming that a spokeswoman for the Royal Society for the Protection of Birds went out of her way to assure BBC News that, "The bird poses no threat to the public as they are purely scavengers," and, "They are usually quite tame so if they do fly down to land on someone it is because they think it's their handler and not because they are attacking that person."<sup>[43]</sup> When a much larger vulture – a Rüppell's Griffon, also native to Africa - escaped in Scotland later that year, the event sparked off an alert among aviation authorities. One airport warned that, "With a wingspan of 10 ft [an exaggeration], it could do a lot of damage to a large aircraft. But it's also half the size of some of our small training aircraft and it could take one of them, or even a helicopter, right out." Scottish newspapers reported the story with headlines like "GIANT VULTURE MENACES SCOTTISH SKIES" and "HUGE VULTURE HANGS OVER GLASGOW."<sup>[44]</sup> One might think that other large birds, such as the similarly exotic Canada Geese that have colonized Britain in huge numbers, ought to be a more immediate concern for pilots; but then, "GIANT GOOSE MENACES SCOTTISH SKIES" just doesn't have the same punch, does it?



And then, there are the others; sightings that can't conceivably be explained by misidentifications of known native birds, or even by encounters with escaped vultures, because the sighted "birds" were simply too large, or behaved too strangely, to be anything so mundane. These tales lie beyond the scope of this chapter; indeed, beyond the scope of this book, although one can't help but marvel at the variety of explanations that have been proffered for them. Mass hallucinations, angels flying unusually close to the earth, beings from another dimension, and the ever-popular air-mass inversion have all been fingered as potential culprits in Big Bird sightings. Another possibility, which seems to have been entirely ignored by cryptozoologists, is that thunderbird-spotters have inadvertently stumbled upon secretive experiments with ornithopters: aircraft similar to airplanes in most respects, but that propel themselves with flapping wings rather than propellers or jets. Such machines do exist, and would comfortably fit the dimensions often reported for "thunderbirds." Although they've been making a bit of a comeback lately, ornithopters are generally regarded as one of the shameful dead ends in the development of manned flight, and many historians place the blame for the effort squandered on them squarely upon the shoulders of birds.

Throughout the 20th century and into the present day, it's been fashionable to downplay the role that birds had in the development of flight; to present the accomplishment of heavier-than-air flight as a triumph solely of applied science and experimentation, rather than of observation and imitation. Orville Wright himself claimed in 1941 that, "I cannot think of any part bird flight had in the development of human flight excepting as an inspiration," and aviation historians have largely concluded that the use of birds as templates for flying machines resulted primarily in stultifying and negative effects, hindering an accomplishment that otherwise might have happened years earlier. These conclusions would have much surprised the most successful of all the pre-Wright aviators, Otto Lilienthal, who wrote (with his own italics) "*the only possibility of attaining efficient human flight lies in the exact imitation of birdflight with regard to the aerodynamic conditions, because this is probably the sole method which permits of free, rapid flight, with a minimum of effort.*"<sup>[45]</sup>

It's a mistake to look at bird flight, and its influence upon manned heavier-than-air flight, as an undistinguished whole. From an aviator's point of view, there are two distinct forms of bird flight; the first, powered or flapping flight, is practiced by most birds, and did lead those who sought to imitate it into many imaginative-yet-fruitless experiments involving artificial flapping wings. The other, soaring flight, is practiced mostly by larger and rarer birds, and it led to much greater things. The difference in potential between the two forms was apparent long before the Wright brothers' ultimate success in achieving heavier-than-air flight in 1903. Writing in 1894, the aviation chronicler Octave Chanute remarked that "such approximations to success, as have hitherto been attained with artificial flying machines, were probably accomplished with fixed surfaces, either by gliding downward by the force of gravity, or in soaring upon the wind like a bird."<sup>[46]</sup> There was nary a pioneer (or would-be pioneer) of heavier-than-air flight who wasn't inspired in their youth by large soaring birds, and not just vultures. Eagles, albatrosses, storks, buzzards, pelicans, and gulls all did their part to coax humanity into the sky. Contrary to Orville Wright's comment about the minimal importance of bird flight, there was much more involved in this relationship than just inspiration; many flight pioneers carefully observed large birds, and in some cases attempted to copy their mechanisms and maneuvers. The French flight pioneer Louis-Pierre Mouillard was rather vehement in stating the value of vultures in this endeavor; he wrote that, "Whosoever has for five minutes had the fortune to see the Oricou [Lappet-faced] vulture in full sail through the air, and has not perceived the possibility of his imitation by man, is - I will not say of dull understanding, but certainly inapt to analyze and to appreciate."<sup>[47]</sup>

There was no lack of such appreciation within the range of the largest of vultures, the Andean Condor. A popular tradition in Peru holds that, sometime around 1810, a man named Jose Hurtado y Villafuerte captured and tamed a Condor. He then somehow coaxed the bird to fly to the top of the highest hill in his district, *carrying a boy* (!), and then fly back again while still bearing its rider. Information is far too scanty to pass judgment on the veracity of this tale, but Villafuerte apparently took the possibility of travel-by-Condor quite seriously, calculating that a Condor could transport a person from Arequipa in Peru to Cadiz in Spain in just seven hours.<sup>[48]</sup> For some people, the very existence of vultures and their long relationship with humanity rendered the “miracle” of manned flight a lot less miraculous. In their 1934 book *Rebel Destiny: Among the Bush Negroes of Dutch Guiana*, the anthropologists Melville Herskovits and Frances Herskovits explained why these descendents of escaped slaves took a jaded view of the flying machines that were viewed as the crowning achievement of Western technology:

Old men and young men had heard of machines with people on them that flew like birds, but had they not their own stories about the sacred vulture, the *opete*, that carried one of their warrior ancestors away from slavery across the river and into this bush? He had simply mounted the bird and said to it, "On your back is my home. You can fly over land, and you can fly over water. I have no boat. You must carry me." And the opete took him. Then there are beings with wings that range the sky, and some of them are birds, and some of them are spirits. No, a machine that flew like a bird was not astonishing magic.<sup>[49]</sup>

But, lest we get ahead of the story, I must point out that not everyone was enthused by the prospect of human flight, and still less by the prospect of humans taking on other characteristics of birds. Some dreaded it, in the belief that the development of flight would inevitably be accompanied by all of the detestable behavior that accompanied it in vultures and other large raptors. In 1701 the botanist Nehemiah Grew wrote, “Had [man] been a bird, he had been less sociable. For upon every true or false ground of fear, or discontent, and other occasions, he would have been fluttering away to some other place: And Mankind, instead of cohabiting in Cities, would like the Eagle, have built their Nests upon Rocks.”<sup>[50]</sup> An even gloomier view was espoused by the Frenchman Abbé Pluche in 1733, when he claimed that manned flight

would intirely change the Face of Nature; we should be compelled to abandon our Cities and the Country, and to bury ourselves in subterraneous Caves, or to imitate Eagles and other Birds of Prey; we should retire, like them, to inaccessible Rocks and craggy Mountains, from whence we should from Time to Time sally down upon the Fruits and Animals that accommodate our Necessities; and from the Plain, we should immediately soar up to our Dens and Charnel Rooms.<sup>[51]</sup>

Although their less popular habits led some to doubt their appropriateness as models, there’s no question that vultures were important to the development of flight. In the words of Louis Pierre Mouillard, “this is the type which will lead man to navigate the immensity of space.”<sup>[52]</sup>

Vultures have, by their very existence, done much to keep [the dream of flight](#) alive for humans. Aside from their skill at soaring, this is due largely to their size; even Daedalus would be hard-pressed to equate the imperceptibly quick flying motions of a swallow or hummingbird with anything that humans are capable of - but a big vulture, as large as and not so much lighter than a half-grown child, and only occasionally flapping its enormous wings with a ponderous motion that seems almost human, is a far more realistic role model. Size was also useful when deciphering the mystery of how the birds could take to the air and remain there for hours on end. Whereas observations of birds like kites or gulls could produce only fairly elementary deductions, the much

larger and more cumbersome vultures offered flight pioneers the possibility of examining detailed schematics to the smaller birds' thumbnail sketches. According to Louis-Pierre Mouillard, one of the flight pioneers who carefully studied vultures,

this observation, in order to carry absolute conviction, must bear upon the performance of the largest vultures, and they alone; and this is the reason: it is because all the other birds which ascend into the air by this process do not perform the necessary decomposition of forces required in all its naked simplicity.<sup>[53]</sup>

When flying close to the ground, a carefully watched large vulture can reveal not only the obvious movements of its wings and tail, but also the subtle twistings and turnings of individual flight feathers.

But watching a large bird carefully is seldom easy; the creatures tend to be very wary of humans, and with good reason. Octave Chanute asserted that "there is no creature so willful, so swift, and so easily affrighted as the bird, and that once in the air, he will not lend himself to be measured experimentally."<sup>[54]</sup> Many very large birds, such as bustards, are extremely difficult to observe in the wild, normally fleeing if a human approaches to within half a mile (0.8 km) in plain sight. Vultures are often shy on the ground (particularly where they have been regularly harassed and persecuted), but may be much bolder in the air. Several species, such as the Lammergeier and California Condor, will deliberately approach humans and loiter over them, for reasons that aren't always evident to the observers. This habit has been disastrous for many birds, but it was a boon to people interested in decoding the mystery of how such giants could sail through the air.

The larger vultures represent the zenith of dimensions that are reached by flying animals in our time. This fact has long been recognized, and even used as evidence that human flight was and always would be a pipe dream; notably in the eminent astronomer Simon Newcomb's infamous "The Outlook for the Flying-Machine" essay, which was published not long before the first public reports of the Wright Brothers' successful experiments. Newcomb was a vocal proponent of the then-popular viewpoint that heavier-than-air human flight was impossible, and he thought that although many would-be aviators had looked to birds for inspiration, "The example of the bird does not prove that man can fly." His reasoning was as follows:

The limit which the rarity of the air places upon its power of supporting wings, taken in connection with the combined weight of a man and a machine, make a drawback which we should not too hastily assume our ability to overcome. . . . The hundred and fifty pounds of dead weight which the manager of the machine must add to it over and above that necessary in the bird may well prove an insurmountable obstacle to success.<sup>[55]</sup>

Newcomb then attempted to use the relative abundance of small and large flying creatures to bolster his logic; after all, he wrote, "The most numerous fliers are little insects, and the rising series stops with the condor, which, though having much less weight than a man, is said to fly with difficulty when gorged with food."<sup>[56]</sup> (Much as a scientist reasons with difficulty when gorged with misinterpreted knowledge.)

Laughable though the astronomer's conclusions are today, he had a point: there do seem to be fairly definite limits upon the weights of flying animals. No insect weighs more than a quarter-pound (0.1 kg), and no bats and only a few hundred (out of roughly 10,000) bird species weigh more than about four pounds (1.8 kg). Average weights for all of the heaviest flying birds, including condors, the largest griffons and dark vultures, swans, and pelicans, fall in the 20 to 30 pound (9 to 13.6 kg) range. Weightiest of all are not the condors, but two species of bustard, the Great of Eurasia and the Kori of



Africa. Males of these species sometimes top 30 pounds, occasionally even 40 (18 kg), but there is evidence that these exceptionally large individuals may lose the ability to fly.<sup>[57]</sup> Similar size constraints seem to have held firm for recently extinct birds,<sup>[58]</sup> although some of these hadn't yet been discovered when Newcomb denied the possibility of manned flight. The two largest known raptors, the Maltese Vulture and Haast's Eagle of New Zealand, were similar in size and weight to a large male Andean Condor. Merriam's Teratorn was substantially bigger than a condor in wingspread, but is not believed to have averaged heavier than a weighty male Kori Bustard. The Incredible Teratorn did; in fact, if current size estimates of the species are accurate, it was roughly twice as heavy as any other recent flying bird. But the fossil record of this species is so patchy that it's far from certain that these estimates are even remotely correct; nor is it known beyond any doubt that the species actually survived into the Late Pleistocene, that claim being based on a single fossil fragment that may have been misidentified.<sup>[59]</sup> In the court of flight, the Incredible Teratorn is an inadmissible witness because of lack of evidence for its recent existence.

On the basis of weight alone, then, a human-carrying heavier-than-air machine seems impossible, unless the human in question weighs less than a big bustard. Fortunately for the development of manned flight, researchers seem to have been more impressed by size than by weight, and focused more upon sustained soaring flight than flapping flight, if only they could find a way to witness soaring in action. Octave Chanute wrote that

it is a significant fact that the greater number of experimenters who are said by tradition to have actually succeeded in floating for a short distance on the air, were men living in warm climates, where the soaring varieties of birds are much more numerous and more easily observed than in variable and colder climates. This suggests the inference that these experimenters had been watching the soaring birds, sailing upon fixed wings in every direction, and endeavoured to imitate their evolutions. . . . Elsewhere than in warm climates the soaring birds are so few, they so frequently have to resort to flapping, that those who have not seen them sailing about for hours upon fixed, extended wings, deny even the possibility of such a performance, and only think of wings as oscillating surfaces. . . .

Chanute added that the ignorance of the possibilities of soaring flight among 19th-century aviators was so profound that in 1842, when an English inventor took out a patent for a flying machine with fixed wings, "the proposal to obtain support from the fixed surfaces of an aeroplane was hailed by many as a new and happy idea."<sup>[60]</sup> Indeed, as late as the 1890s, quite a lot of people who should have known better were strenuously denying that soaring flight as it is understood today even existed among birds.<sup>[61]</sup> Simon Newcomb - who, I stress, was a widely respected professional scientist at the beginning of the 20th century - was apparently entirely unaware that some birds are capable of flying without continuously flapping their wings. In his "Outlook for the Flying-Machine" essay, he wrote that "the bird operates by the application of a kind of force which is peculiar to the animal creation . . . that which gives rise to muscular action"; but of course, "We cannot have muscles or nerves for our flying-machine."<sup>[62]</sup> Newcomb thought that "there is no mechanical combination, and no way of applying force, which will give to the aeroplane the flexibility and rapidity of movement belonging to the wings of a bird."<sup>[63]</sup> He then compared the idea of a heavier-than-air flying machine to an oceangoing ship that "on the occasion of any accident . . . immediately went to the bottom with all on board."<sup>[64]</sup> The case for soaring flight wasn't helped by the fact that most would-be aviators lived in Europe, where vultures and other large soaring birds had long since been banished to remote areas. According to Louis-Pierre Mouillard, a proud Frenchman, "It is not in Paris that the seeker will

become convinced, it is not even in Europe, where soaring birds are so rare that months may pass without one being seen.”<sup>[65]</sup>

Nevertheless, by the end of the 19th century, there were few flight pioneers anywhere in the world who hadn't been inspired by the aerial antics of vultures, either through personal observation or by reading the recorded observations of other pioneers who had sought out the birds. Among the first to vocally assert this inspiration was the aforementioned Mouillard, who lived in (then) vulture-rich Egypt. Mouillard spent many days over a period of 30 years watching soaring birds, the results of which were published in a book titled *L'Empire de l'Air* in 1881. In this landmark work, Mouillard described how soaring birds flew, the maneuvers that they used to control their flight, and gave reasons for believing that such flight could be imitated by humans. In his words, and with his own italics:

*I hold that in the flight of the soaring birds (the vultures, the eagles, and other birds which fly without flapping) ascension is produced by the skillful use of the force of the wind, and the steering, in any direction, is the result of skillful manœuvres; so that by a moderate wind a man can, with an aeroplane, unprovided with any motor whatever, rise up into the air and direct himself at will . . .*<sup>[66]</sup>

He provided measurements for 13 species of bird, and concluded that the easiest of them for a human to imitate in the air would be the Eurasian Griffon.<sup>[67]</sup> Mouillard wrote that the Griffon “has evolved a peculiar mode of flight; he sails and spends no force, he never hurries, he uses the wind instead of his muscles, and the wing flap occasionally seen is meant to limber up rather than to hasten through the air.”<sup>[68]</sup> He also noted that the Griffon was “unfortunately an unknown bird to those interested in the problem of flight, for not one person in a hundred has seen it in the air.” Even in Cairo, “where there are some sailing over the city every day during three months of the year,” few of the European residents paid any attention to the vultures. But, said Mouillard,

when the student takes the pains to go where the bird is to be found; when he sees this great animal, large as a sheep, painfully rising from the ground with strokes upon the air whose hissing is heard 300 yards away in the silence of the desert; when he sees them afterwards describing their endless sweeps, he appreciates this most interesting sight; every human being is chained to the spot . . . for in this bird we have found motion under a new aspect; it resembles as to majesty and impressiveness the action of a locomotive at full speed.<sup>[69]</sup>

His book explained how the flight of the Griffon could be imitated by a heavier-than-air machine, allowing it to both stay in the air for long periods and be propelled by nothing but the winds. Mouillard constructed several gliders during his aviation career, including one that looked very much like the outstretched wings of a Griffon; unfortunately, it was built so lightly that it cracked while Mouillard was testing it “with vigorous thrusts of the legs,” and he never had a chance to try it in the air.<sup>[70]</sup>

Writing in the 1890s, Octave Chanute mentioned that one of the peculiarities of French would-be aviators was that they “doubted the reality of the performance of sailing flight by the birds, whose evolutions they were unable to watch in their climate.”<sup>[71]</sup> This certainly seems to have been the case for the environment that Mouillard worked in, as he admitted that

It will doubtless be very difficult for many persons to admit that a bird can with a moderate wind, remain a whole day in the air with no expenditure of power. They will endeavor to suppose some undetermined pressures or some unseen flappings. . . . All those who have not *seen* say, when ascension without

expenditure of force is mentioned to them, “Oh, well, there were some motions which escaped your observation.”

It even occurs sometimes that chance or superficial observer, who has had the luck to see this maneuver well performed by a bird, when he turns it over in his mind afterward feels a doubt invading his understanding; the performance seems so astonishing, so much against ordinary experience, that the man asks himself *whether his eyes did not deceive him*.<sup>[72]</sup> [His italics]

Still, the vultures continued to be attractive models; there was something about their combination of size, weight, aerial grace, and reputation that made them irresistible to aviators.

Though it was ultimately unsuccessful in producing a workable flying machine, Mouillard's work influenced many flight pioneers, none more than a fellow Frenchman, Clément Ader. Born in 1841, Ader was fascinated with flight since childhood, as he recounted in his preemptively titled 1909 book *L'Aviation militaire*. While in his thirties, Ader conducted experiments with man-carrying kites (then in demand as military observation platforms) and with gliders. These experiments inspired him to observe and examine a variety of large flying creatures. He first attempted to experiment on eagles and large bats that he bought from zoos and brought to his workshop. The eagles were drugged by feeding them mice that had been chloroformed; then, while under sedation, Ader moved their wings and studied their articulation, and kept them captive after they retained consciousness to study their attempts at flight.<sup>[73]</sup>

Finding the results of these exams wanting, he resolved to view large soaring birds in the wild, as Mouillard had. From July to October 1882, he journeyed first to Strasbourg to study storks, and then to Algeria (a French possession at the time), intending to view vultures - but he saw no large vultures near the city of Constantine, in the Atlas Mountains of the north of the country. Ader then decided to travel into the interior of the country to see vultures in their natural habitat; an adventurous and risky proposition, as a lone European would be easy prey for bandits. Ader disguised himself as an Arab and went into the interior with two native guides; and, surely enough, found large vultures (Eurasian Griffons and probably also Monk Vultures) in numbers. He managed to entice them into close-range view by delegating a hunter to bait them with meat, and then hid to await their arrival. Initially, there wasn't a single vulture anywhere to be seen,

then suddenly, lifting my head toward the dazzling sky, I saw at a great height a vague form of pale orange color, bordered with light gray, hanging apparently motionless: it was a vulture. . . . I could make out another, higher and almost invisible, then still others. They were all descending in great circles, and as they approached we could see their wings were rigid, widespread. Soon they were quite near us, showing us their superb form and impressive appearance. Without any hesitation they headed toward the hunter, who threw them scraps of meat. I also tried my hand at feeding them, and though I was not disguised, they came to gobble up the pieces I threw them. Our provisions were soon exhausted, and the vultures departed by the same route, that is heading back overhead by making great circles without the least movement of their wings. Eventually they became tiny dots in space and then disappeared altogether.<sup>[74]</sup>

Much impressed with this experience, but still wanting to see more, Ader headed for the same area the next morning, this time bringing binoculars and some optical instruments he had already used to gauge the flight of large birds, as well as two assistants loaded down with meat to attract the vultures. The sky was cloudless, the westerly wind was blowing strongly, and soon enough:

Those hazy specks appeared at great height, as they had the day before. They were not yet visible to the naked eye, yet the vultures had understood from our comings and goings that we had brought them food, thus proving that their sight was better than our own. . . . in no time at all their numbers had grown so



that I was a bit concerned, although I knew that these meat eaters posed no danger to me. I was literally surrounded by them. Their wings almost touched me as they passed with a whispering sound like that the wind makes passing through leaves. It was an admirable spectacle.

The hunter accompanying Ader proceeded to toss scraps of meat to the birds while they were airborne, which the vultures rarely missed. Ader noticed that they were far more numerous at the hunter's position than anywhere else; and that as they flew, they "carried their prize up quite high in the air, then once they had swallowed it they dropped down on him to seize another: all of this was done without a single beat of the wings and with an astonishing facility of movement." This confirmed his theory that the birds recognized and soared upon specific patterns of air currents, which he dubbed "air lanes."

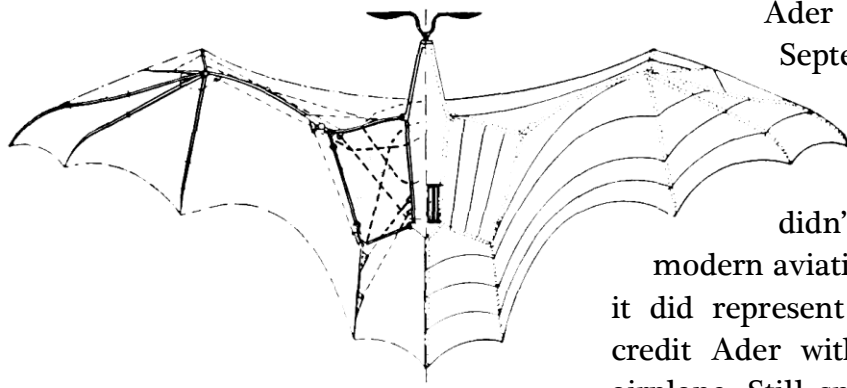
Ader's other assistant, the hunter's son, was far less of a vulturine attraction, even though he also attempted to bait the birds. Ader noticed that "the birds refused to go to him, and those who did venture that way, drawn by his full basket, turned back without taking anything, but with some labored flapping of their wings," and he attributed this to the boy's position "in the descending current, the very opposite of an air lane." In order to test that hypothesis, he had the hunter's son move closer to his father; the vultures followed him to this new position, and the boy's basket of meat had soon been emptied. Ader then ordered both of his meat suppliers to move back down the slope, to the spot where the hunter's son had first stood and where the vultures refused to go. Although the vultures continued to take the food tossed out to them,

gradually their eagerness subsided, and they remained suspended in the air, turning about at a certain height which increased as the food bearers descended. When the men reached the bottom of the slope, both they and the birds remained in the same position, the former offering food and the latter no longer taking it. Then I had the men go back to where they had started, and the same sort of thing happened except in reverse sequence. The birds all descended again; during the entire time they never left the air lane. Wasn't this the conclusive, emphatic proof of its existence? [Translated by Lee Kennett]

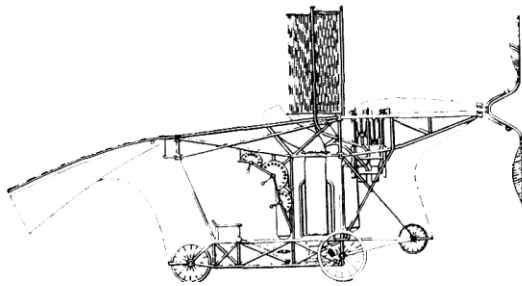
Ader added that "I don't think it is possible by description alone to convey to others the amazing scene I witnessed," and had there existed a "School of Aviation," he would have its students taken on a field trip to see the same thing, where "not only would they have learned about the flight of large birds but also about air lanes." From his observations, Ader deduced that the birds only had to flap their tremendous wings, some spanning nearly 10 feet (3 m), in order to rise from the ground. Once airborne, the vultures held their wings rigid, and adjusted to varying wind directions and speeds merely by fractionally moving their wings and tails.<sup>[75]</sup>

After returning to Paris, Ader set to work building a powered heavier-than-air machine, an *avion* (a word which remains in current French use as the equivalent of the English *airplane*). He kept a number of vultures as well as other birds and bats in an aviary near his house, and continued to study them as he worked. In 1890, the *Eole*, the first full-sized powered airplane in world history, was completed. Despite Ader's infatuation with vultures, its wings were based on those of bats rather than birds, since bat wings were structurally simpler and thus easier to replicate. Powered by an exceptionally light steam engine, the machine would be driven by a propeller modeled after bird feathers, with each of the four propeller blades possessing a central quill and airfoil vanes extending outwards from the quill in opposite directions. The *Eole's* lack of control surfaces was a seeming oversight in its design; it had no horizontal stabilizer, no ailerons, and only a fixed vertical stabilizer, and so it would have been completely incapable of doing anything in the air except ascending or

descending. It seems that Ader intended the machine to be more of a proof-of-theory testbed than a fully functional aircraft.



Ader conducted tests with the *Eole* (left) during September and October 1890, attempting to coax the ungainly craft into the air. On October 9, the machine actually became airborne, for a distance of roughly 50 yards. Although this didn't really constitute a "flight" by the standards of modern aviation, since it was neither sustained nor controlled, it did represent something of importance: aviation historians credit Ader with engineering the first takeoff of a powered airplane. Still smarting from the defeat of the Franco-Prussian



War two decades earlier and seeing the military potential of the *avion*, the French government became interested at this point, and began to fund Ader's work. With this added support, he built first a larger and more powerful model of the *Eole*, and then *Avion No. 3*, a two-propeller aircraft completed in 1897. The latter machine was tested in front of eyewitnesses (including two generals) on October 14; during the test, the *No. 3* was wrecked,

although it seems that no one is certain whether it actually became airborne before meeting its fate. In any case, it was the last full-sized aircraft Ader ever built; afterwards his interests drifted away from flight.<sup>[76]</sup>

The two men who finally cracked the code for controlled and powered heavier-than-air flight found their vulturine inspiration somewhat more accessible than had Mouillard and Ader, once they left their Ohio home for the blighted sands of the Carolina coast. Wilbur and Orville Wright's interest in flight was first sparked by a small flying toy that their father brought home for them. They attempted to build one on a larger scale, but failed; their interest in flight then lay dormant until they read about the experiments of the German aviator Otto Lilienthal, a few months before his death after a glider crash in 1896. The Wrights were inspired by Lilienthal to look for other books relating to flight; however, they could find little other a volume entitled *Animal Mechanism* by Étienne Jules Marey, which explained the physiology of various flying creatures. Orville Wright recalled that their interest was again aroused in spring 1899 by a book on ornithology, and,

We could not understand that there was anything about a bird that would enable it to fly that could not be built on a larger scale and used by man. At this time our thought pertained more particularly to gliding flight and soaring. If the bird's wings would sustain it in the air without the use of any muscular effort, we did not see why man could not be sustained by the same means.<sup>[77]</sup>

Resolving to prove this, the brothers decamped for South Carolina.

Kitty Hawk, a marshy area near the Atlantic coast, proved to be a superb place for testing gliders (and, eventually, airplanes); and, as Wilbur noted, was also "a splendid place to observe soaring flight. I think at least a hundred buzzards [Turkey Vultures], eagles, ospreys, and hawks made their home within a half mile of our camp. We were enabled to make a number of observations and settle conclusively to our minds some points which have been much disputed among writers on the soaring problem."<sup>[78]</sup> Orville, initially less impressed with the local avifauna, complained to the brothers' sister

Katharine that, “It is with considerable effort that I have succeeded in keeping him [Wilbur] in the flying business at all. He likes to chase buzzards, thinking they are eagles, and chicken hawks, much better.”<sup>[79]</sup>

Soon enough, Orville took a liking to buzzard-chasing as well. By 1902, he was writing observations of his own, including this from his diary entry dated September 27:

We went out before dinner on a tour of inspection of hills, measuring many of the slopes of the large and small Kill Devil Hills. We had a number of good opportunities for watching the buzzards soaring on the Big and Little Hills. . . . We watched them many times gliding down the west slope of the large hill, and whenever they maintained their altitude above ground [relative to the] slope of hill they always seemed to lose speed, and were compelled to begin flapping. After much flapping and after gaining an altitude of about 200 feet [91 m] they had no more trouble in soaring.

Orville even attempted to clock the speed of one the vultures, by timing “the passage of its shadow over certain points,” and found that it reached a speed of about 30 miles (48 km) per hour.<sup>[80]</sup> Many years later, Orville recalled that the “most remarkable example of soaring that I have ever seen witnessed by Wilbur and myself near Kitty Hawk in 1900.” In his words:

One morning after a cold night we saw a number of buzzards, probably fifteen in number, and several fish hawks, begin by flapping their wings vigourously and flying together in the circle, gradually working upward. When at an altitude of approximately fifty feet [15 m] they suddenly quit flapping and then rose rapidly on stationary wings. As they rose higher they spread out into larger circles. When they reached an altitude of about one thousand feet [305 m] they began to separate, each gliding off in a straight line. After leaving the circle they all lost altitude.

Orville thought this example showed that, “In fact the gliding angle of the buzzard is not better than that an aeroplane,” and that the actions of the birds were remarkable “in the intelligence or the instinct . . . which led them to create for themselves a soaring condition where it did not already exist.”<sup>[81]</sup>

For all that the [Turkey Vulture](#) has served as a butt for countless jokes, Americans have long recognized the bird’s unequalled prowess in the art of soaring. In a sort of backhanded compliment to the vulture, its vulgar name was sometimes bestowed upon other birds that displayed unusual skill in riding the air currents; for instance, the Long-billed Curlew, a waterbird with scant physical resemblance to a vulture, was sometimes called the *Buzzard Curlew*.<sup>[82]</sup> The Wright Brothers were far from the first to recognize the potential relevance of Turkey Vultures to human flight; the Amerindians had done so for many centuries, and even John James Audubon had taken note of it. Writing in the early 19th century, Audubon described how a Turkey Vulture “will sail for miles by merely turning either on one side or the other, and using its tail so slowly, to alter its course, that a person looking at it, whilst elevated and sailing, would be inclined to compare it to a machine fit to perform just a certain description of evolutions.”<sup>[83]</sup> A remarkably prescient remark, considering that no machine fit to perform those evolutions would be built for almost a century. The Wrights were among the first, and certainly the most successful, in finding practical applications for the Turkey Vulture’s lessons.

At first glance, Turkey Vultures wouldn’t seem to be ideal teachers of the art of aerial stability. Constantly teetering back and forth, and easily blown off course by even a moderate wind, a hypothetical Turkey Vulture passenger would assuredly get a very rough and possibly panic-inducing ride. But it’s specifically because of this inherent instability that Turkey Vultures proved valuable to the Wrights. In a letter Wilbur wrote on May 13, 1900, he described how:



My observation of the flight of buzzards leads me to believe that they regain their lateral balance, when partly overturned by a gust of wind, by a torsion of the tips of the wings. If the rear edge of the right wing tip is twisted upward and the left downward the bird becomes an animated windmill and instantly begins to turn, a line from its head to its tail being the axis. It thus regains its level even if thrown on its beam ends, so to speak, as I have frequently seen them. I think the bird also in general retains its lateral equilibrium, partly by presenting its two wings at different angles to the wind, and partly by drawing in one wing, thus reducing its area. I incline to the belief that the first is the more important and usual method. In the apparatus I intend to employ [in the glider] I make use of the torsion principle.<sup>[84]</sup>

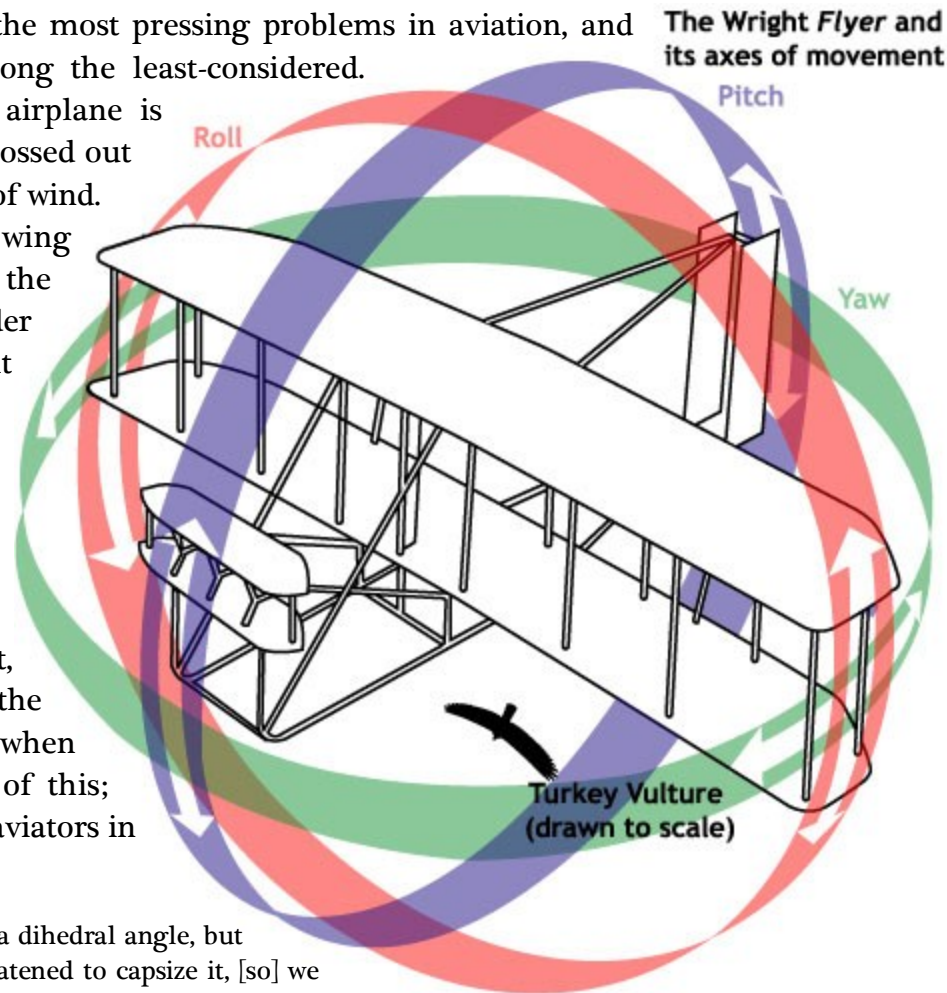
Lateral (roll) control was one of the most pressing problems in aviation, and yet, prior to the Wrights, was also among the least-considered.

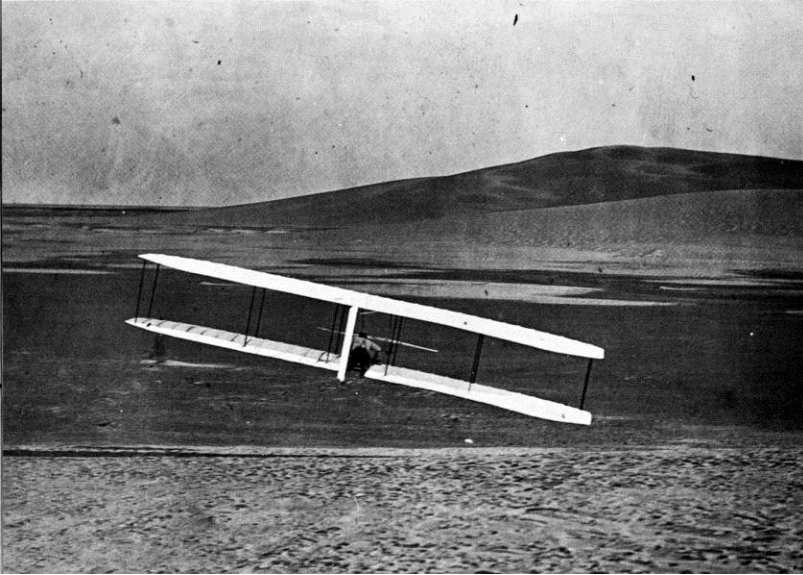
Without the ability to roll at will, an airplane is almost incapable of turning, and can be tossed out of control by any strong updraft or gust of wind.

Wilbur Wright first conceived of wing warping in 1899, and, inspired by the vultures, built it into a man-carrying glider in August 1900. It's generally thought that the Wrights' unique focus on this very important problem of flight was due to their background in bicycling; with only two wheels to balance on, bicyclists must lean, or roll, into their turns.<sup>[85]</sup> But the Turkey Vultures may also deserve some small part of the credit, since they roll back and forth in all but the weakest air currents, and certainly do so when turning. The Wrights were well aware of this; during a discussion with other would-be aviators in June 1903, Wilbur mentioned that

In our first machine we set the wings at a dihedral angle, but we found that every little side wind threatened to capsize it, [so] we drew the tips down like the wings of a gull. The gulls fly in the stormiest weather, while buzzards which use the dihedral angle avoid high winds. . . . The dihedral angle is the proper solution of the problem for flight in still air, but it makes matters worse instead of better when the wind blows. Unfortunately the wind usually blows.<sup>[86]</sup>

Although wing-warping is now not thought to be used by birds for roll control, the name of the mechanism that controls roll in airplane still derives its name from birds, for the French word *aileron* initially referred to the extremity of a bird's wing. The roll-controlling surfaces of some early airplanes consisted of nothing but movable wingtips; when a French flyer named Henri Farman heard of these, he exclaimed "Ah, ailerons!" and the name stuck.<sup>[87]</sup>





It's ironic that the Wrights have often been credited with the "conquest of the air," when their gliders (left), and their later *Flyer*, were designed and best suited for working *with* the air, not against it, just like the Turkey Vulture. Many earlier, heavier aircraft designs would have depended on the sheer power of their propulsion systems to stay airborne, had they gotten into the air at all. By May 13, 1900, Wilbur had already concluded that "what is chiefly needed is skill rather than machinery. The flight of the buzzard and similar sailers is a convincing demonstration of the value of skill. . . . It is possible to fly without

motors, but not without knowledge & skill."<sup>[88]</sup> This conclusion - that in the pursuit of heavier-than-air flight, control was more important than power - was not shared by all would-be aviators. One of the Wrights' contemporaries and competitors in the quest for the air also studied Turkey Vultures intensively, but he seems to have reached the opposite conclusion regarding the choice between control and power. This was Samuel P. Langley, then the Secretary of the Smithsonian Institution of Washington, D.C.

Langley's assistant and test pilot, Charles Manly, recalled that although "Mr. Langley considered it not practicable or best to attempt to imitate the details of construction of the flying mechanism of birds. . . . he strongly believed that much was to be learned from them about the practical side of the art of balancing". Langley journeyed to Jamaica in 1900 for the specific purpose of studying the local Turkey Vultures, known as "John Crows." Langley thought that these birds were "almost as much superior in skill to our buzzard as that is to a barn-yard fowl in its power of keeping itself in the air without flapping its wings, in what is very nearly a calm"; because his impression was "that the buzzard is a considerably heavier bird than the 'John Crow,' without, however, very much greater spread of wing."<sup>[89]</sup> Jamaica's John Crows do average somewhat smaller and lighter than the Turkey Vultures of the eastern US, but any great difference between the flight patterns of the two probably existed only in Langley's imagination. As Manly noted, "The feats of airmanship performed by the 'John Crow' seemed to greatly impress Mr. Langley."<sup>[90]</sup>

Langley, who had noted "this ability to guide by the slight inflection of the wing in my studies of the Jamaica buzzard," was confident from his studies of "the possibility of directing the bird, and consequently the flying machine, by the mere inflection of the wing, that is, by changing its angle". He thought that in practice, this mechanism would "apparently involve the ability of the wing to rotate about a line passing through it nearly lengthwise"; therefore, "an allowance for this; if not in the wing itself, then in the wing-holder" should be built into his aircraft, the *Great Aerodrome*. As already mentioned, the Wrights also realized the usefulness of wing-inflection at about the same time, by means of similar observations of vultures, and incorporated control of it into their gliders by adding wing-warping mechanisms. Unfortunately, Langley's assistant later noted, his instructions and suggestions for incorporating a similar mechanism into the *Great Aerodrome*

were never carried out by the writer, on account of the extreme pressure of the work already on him which had for its object, not the production of a flying machine which would embody all of the control which we wished it to have, but which would be burdened only with such devices and arrangements as would enable it to transport a human being, and thus demonstrate the practicability of human flight.<sup>[91]</sup>

Langley was apparently unaware that a flying machine able to transport a human being had already been constructed, and demonstrated, by Clément Ader; had he known of this, he might have decided to take a bit more time building "a flying machine which would embody all of the control which we wished it to have."

A demonstration of the practicability of human flight wouldn't fall to Langley, however. He attempted to launch his *Great Aerodrome* from a houseboat floating on the Potomac River on October 7, 1903, with Charles Manly piloting it. During takeoff, the plane snagged on the launch mechanism and ignominiously dumped itself into the water; Manly narrowly escaped drowning. Predictably, the headline of the October 8 *Washington Post* read:

BUZZARD A WRECK  
LANGLEY'S HOPES DASHED<sup>[92]</sup>

But the vultures, and their human students, would have the last laugh. 70 days later, on December 17, 1903, another artificial "buzzard" took to the air for the first powered, sustained, and controlled heavier-than-air flight in human history. For a few brief moments, the Turkey Vultures of the Kill Devil Hills of South Carolina shared the sky with a machine that, ungainly though it was, would eventually prove to be a worthy competitor in the air. We cannot know the vultures' thoughts on this matter; but had they known they known of the importance of their contributions to this achievement, they just might have been proud.

Afterwards, there were a few odd homages recognizing the vultures' importance in guiding humanity into the air. In 1927, the Audubon Society of St. Petersburg, Florida sponsored a statewide, all-ages vote in order to designate Florida's official state bird. Although the Northern Mockingbird was the eventual winner, to everyone's surprise the Turkey Vulture, the "Buzzard," put in a strong showing. It transpired that the entire student body of one school had voted for the Vulture; not out of any aesthetically inspired admiration for the bird, but merely because they, like the Wright Brothers, had been intensively studying its flight as preparation for a school project to build an airplane.<sup>[93]</sup> As is often the case with unpopular animals, children were far ahead of adults in recognizing the respect due to the vultures. Not only have the carrion birds' colossal contributions to humanity's quest for the skies been almost entirely ignored by historians, but the available evidence suggests that even the Wright Brothers harbored no gratitude to the vultures and other birds that had assisted them in their endeavor.

In a way, this is understandable; while the vulture-watching of other pioneers like Mouillard, Ader, and Langley may have taught them much about the principles of flight, all of that intensive observation still didn't ensure them a place in the air. In a letter written long after the fact, in 1941, Orville Wright stated that,

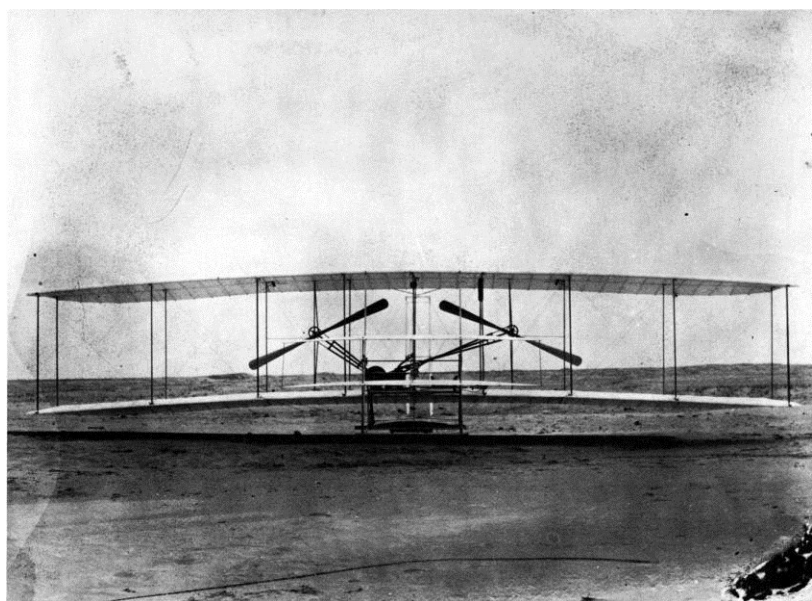
Although we intently watched birds fly in a hope of learning something from them I cannot think of anything that was learned in that way. After we had thought out certain principles, we then watched the bird to see whether it used the same principles. In a few cases we did detect the same thing in the bird's flight.<sup>[94]</sup>

Wilbur may have harbored a different opinion, but if he did, he didn't record it for posterity, and his death in 1912 removed his voice from the discussion. While the "buzzards" that Wilbur and Orville intently watched day after day at Kitty Hawk, and mentioned dozens of times in their diaries, letters,



and speeches, may not have provided ideal archetypes that could be duplicated in wood, wire, and fabric, their real and important significance to the development of flight lies elsewhere.

Throughout their work, the Wrights continuously compared the characteristics of their gliders and airplanes (right) to the Turkey Vultures that shared the skies above Kitty Hawk with them, as their diaries prove. Even after powered, controlled flight had been achieved, the brothers were anxious to measure their creation against the birds. In a letter written to Octave Chanute on March 2, 1905, Wilbur declared, “If the buzzard be taken as the bird which flies with the least expenditure of power, and its rate of gliding descent be taken as 1 in 10, then man has already reached a point within 20 percent of the maximum.”<sup>[95]</sup> More than a year after their first



powered flight, the Wrights were still measuring the aerial prowess of their machines against that of vultures, almost as if they felt that they still had something to prove. This would be a curious development indeed if, as Orville claimed, they had learned nothing from observing the birds; for if they had learned nothing, why did they still feel compelled to use the birds as a benchmark against which their progress could be measured?

As far as the Wrights are concerned, it seems that the soaring prowess of Turkey Vultures represented many things: an inspiration, a jumping-off point, and, once they achieved success, a mark of reference to judge how far they had come, and how far they had yet to go. Dismissing these as inconsequential is as wrongheaded as claiming that the builders of the Egyptian pyramids took no inspiration from the forms of hills and mountains, that the invention of rocketry had no relevance to the advent of spaceflight; or, indeed, that the work of all the earlier flight pioneers, including their vulture observations and their vulture-inspired experiments, was meaningless to the Wrights.

Vultures have been no less overlooked in the one area of aviation where many other birds *have* been widely honored: the names of aircraft. The monikers of hundreds of notable flying birds has been used to christen models of airplanes; since 1903, the skies have seen artificial *Tauben* (“Doves”), Eagles, Falcons, *Albatroses*, Harriers, Storks, and Swallows come and go. There have been a few notable “condors”; the first was probably the American Curtiss Condor, a twin-engine biplane widely considered to be the best bomber of the 1920s. The 1940s saw the Focke-Wulf Fw-200 *Kondor*, a German airliner turned ship-hunter which Winston Churchill once dubbed “the scourge of the Atlantic”; and the Cold War era gave rise to the Russian Antonov An-124, codenamed *Condor* by NATO, which remains one of the largest and heaviest aircraft ever built. But except for the Sud Aviation S.O. 4050 *Vautour* (“Vulture”) II, a little-known and apparently little-loved fighter jet operated by France and Israel during the 1960s, and a minor Israeli variant of the French Dassault Mirage V fighter-bomber known as the *Nesher* (“Griffon”), the dreaded *vulture* and its various linguistic equivalents remain almost entirely unused.<sup>[96]</sup> It's difficult to deduce whether this is because of some superstitious dread of the name, not unlike the once-widespread reluctance among airlines to designate thirteenth seats on their planes, or merely another example of anti-vulture bias.

And yet, *vulture* has had a rather interesting history in aviators' slang, starting with the First World War. During their participation in that conflict, pilots in the American Army Air Corps

established a rigid hierarchy within their squadrons, with newly arrived replacements without any assigned aircraft relegated to the bottom. These greenhorns were christened *Vultures* because they were forced to linger on the ground until an active pilot became a casualty before they could fly any missions; in effect, they were waiting for someone to die. Once a Vulture received a plane, he was promoted to *Buzzard*, and was required to drink a liter of champagne to mark the occasion. The Gimper Squadron, led by Eddie Rickenbacker, the top American ace of the war, developed a slightly different meaning for the word. According to Rickenbacker, *vulture*, or sometimes *goopher*, was used to denote an airman who was *almost* at the top of the heap. Rickenbacker explained this pilots' hierarchy thusly: "When a new chap arrives [at the squadron], he's an egg. All good eggs soon become vultures, and they are promoted to goopher standing."<sup>[97]</sup> More recently, military aviators (and sailors) have taken to dubbing the high position on an aircraft carrier's superstructure where senior officers observe operations *vulture's row*.<sup>[98]</sup> To lower-ranked personnel working on the flight deck, the brass and other observers watching from on high must look remarkably like cliff-perched vultures peering down at a plain, just waiting for a catastrophe to happen. And in the American armed forces, the mundane but very important missions flown for the sake of weather reporting are sometimes referred to as *buzzard missions*; presumably because, like Turkey Vultures, weather planes can be seen flying slowly, almost lazily, and loitering over an area for hours on end.

Such flight can be thought of as a throwback to the day when the Wright *Flyer* first took to the air, droning above the hills where Wilbur and Orville had long marveled at the skill of flying vultures. Surprisingly, and ironically, actual soaring remained an elusive goal of aviators for some time afterwards. Far from seeking out thermals for lift, early fliers greatly feared the updrafts of warm air, as their lightly built machines could easily be tossed out of control by a strong thermal. Hence they usually flew in the early morning or late evening, when the "boiling air" was largely absent.<sup>[99]</sup> Slope

soaring was out of the question; piloting one of the fragile early airplanes into the treacherous wind currents found over rugged terrain would be like deliberately rowing a dinghy into a hurricane. Actual soaring - that is, the experience of fully controlled flight, including the ability to ascend and descend at will, without powered propulsion - was accomplished only in the 1920s by German fliers who managed to coax their sailplanes into the air and keep them there for hours at a time.<sup>[100]</sup>

For many decades thereafter, and despite the incredible advances made in the field of aviation, there remained one further goal that remained conspicuously unattained - and it was the oldest one of all. Every powered aircraft, from the Wright *Flyer* to the B-2 *Spirit*, depended on chemical combustion to fly; none was held aloft only by human muscle. Indeed, to the more pragmatic aviators the idea of a viable human-powered airplane was just as ludicrous as that of strapping bird feathers to one's arms with the intention of flying to the moon. In 1894, Octave Chanute noted that "not only has every attempt of



man to raise himself on the air by his own muscular efforts proved a complete failure, but . . . there seems to be no hope that any amount of ingenuity or skill can enable him to accomplish this feat.”<sup>[101]</sup> And no one was able to prove him wrong, until 1977.

That was the year in which a heavier-than-air craft took to the sky for a sustained and fully controlled flight, powered by nothing but the exertions of a human. This trailblazing machine, designed by Paul MacCready and piloted and propelled by Bryan Allen, was a far cry from the wax-and-feather wings of Icarus and Daedalus - although it was similar to the Wright *Flyer* in many ways, despite almost three-quarters of a century of advances in aviation technology. The influence of the *Flyer*, and of the vultures that had influenced it, could readily be seen in MacCready's design, with its forward-mounted stabilizer, its pusher propeller, and even in the mechanism that controlled its roll by warping its 97-foot (29.6 m) wide wings. But, unlike the *Flyer*, this machine had to be constructed of ultra light-weight plastics and driven by a trained athlete, because nothing less would allow, at long last, the fulfillment of one of humanity's most ancient dreams.

Fittingly, that aircraft was named the *Gossamer Condor*.



# Chapter 10

## Be A Soldier - Feed A Vulture!: The Birds of War

We shall have about as much chance as a gamecock would have in a battle with a vulture.

-Statement attributed to Engineer Vasiliev of the Russian Baltic Fleet, shortly before it was destroyed by the Japanese Navy at the Battle of Tsushima, 1905 (translated by Eden and Cedar Paul)

When one climbs high cliffs one does not fear vultures;  
on the battlefield one does not fear sacrifice.

-Proverb of the Yi people of southwestern China

In the year 44 BCE, when the Roman senator Gaius Cassius suggested to Marcus Brutus that he should assassinate Julius Caesar, the leader and near-dictator of the Roman Republic, neither of the conspirators seem to have received any portents about the consequences of this grave plan; no signs from higher powers signifying whether their actions would bode for good or ill. History records that the night before the assassination, Caesar's wife dreamt of seeing her husband covered in blood, and the next morning fruitlessly beseeched him not to go to the Senate; that a soothsayer, having previously warned Caesar to beware of the Ides of March, encountered him on the way to the Senate that day, and cautioned him that the Ides had not yet passed; and that the evening before, Caesar himself had remarked in polite conversation that the best death to be had was a sudden one, which he would indeed receive at Brutus's knife not 24 hours later.<sup>[1]</sup> But the gods, who had never before been remiss in giving Romans portents of the future, apparently overlooked the conspirators whose actions are widely considered to be among the most fateful in ancient history.

This divine oversight was quickly corrected *after* Caesar lay dead. The story is picked up here by the Roman historian Dio Cocceianus. "Heaven," Dio wrote, "as it is ever accustomed to give warning signs before the most unusual events, foretold to [the conspirators] accurately . . . all the results that would come" of their actions. The signs were themselves most unusual, and no doubt terrifying to those who witnessed them. They included a period when the sun waxed and waned in size, and shone for one full night; thunderbolts and meteors that rained from the sky; shouts and cries of battles that were heard at night in peaceful, deserted gardens; and even that old standby of sinister divine intent, bleeding statues. "But," wrote Dio, "the thing which most of all portended the destruction that was to come upon them, so that it became plain even to their enemies, was that many vultures and also many other birds that devour corpses gathered above the heads of the conspirators only and gazed down upon them, screaming and screeching in a horrible and frightful manner." He added, a trifle unnecessarily, that, "To that side, then, these signs brought evil, while to the other, as far as we know, no bad omen occurred."<sup>[2]</sup>

As many times before and after, the vultures (or the powers that guided them) were privy to foresight that eluded the humans. There was indeed a terrible Roman civil war, culminating in a series of battles in which the armies loyal to Brutus and Cassius were defeated by those loyal to Caesar's successor, Antony. And, just as the vulturine portents had predicted, neither Brutus nor Cassius lived to see the end of the Roman Republic and its transformation into an Empire, because both men killed themselves when they realized the enormity and finality of their defeat. When

Antony discovered the corpse of Brutus, he covered it with his robe; a fitting tribute to a man who had once been his friend, to be sure, but perhaps also a gesture to protect it from the piercing eyes of the birds who had prophesied the carnage.<sup>[3]</sup>

Many an army before and since then has looked overhead to see vultures gazing back down at them, and wondered what the birds might portend. Wherever in the world they occur, the carrion birds are more intimately associated with warfare than are any other animals. Just as the dove is thought of as peace incarnate, in all its non-violent purity and goodness, the vulture was and is considered the embodiment of war, in all its ultra-violent corruption and evil. Why else would vultures have been held sacred to so many gods, spirits, and demons of war; and why else would sinister-looking large bald birds with carrion on their minds crop up over and over again in artistic and literary depictions of warfare? Sometimes they are intended to merely give a scene a sanguinary ambiance, sometimes to present a mortal threat to a wounded hero, sometimes to imply the artist's or writer's view of warfare and its gruesome aftermath. And there's surprisingly little liberty taken with these fictional vultures, for the real-life relationship between them and their militant meal ticket is more ancient, bizarre, and unique than any fictional account of it could ever hope to be.

There are haven't been many constants in the relationship between mankind and other animals over the millennia (besides mass slaughter of the latter by the former), but one article of faith is that practically any war conducted within the range of the world's vultures will be graced with their enthusiastic presence – and it isn't hard to guess why. While the ultimate goal of a given war may be anything from restoration of national dignity to preservation of the geopolitical status quo, that goal is almost always reached by way of killing the opposing side's soldiers, and sometimes its civilians as well. Warfare certainly hasn't killed nearly as many people as disease has; malaria alone has been responsible for more deaths throughout human history, and the Spanish Flu pandemic of 1918-19 killed at least twice as many as the Great War that immediately preceded it (and helped to spread it). But compared to most other agents of human mortality, war reigns supreme. A 1984 study conducted by the University of Oslo and the Norwegian Academy of Sciences concluded that since 3600 BCE, the earliest date for which there are any surviving records, there had been 14,531 wars that killed a grand total of 3,600,000,000 people;<sup>[4]</sup> and nowadays, more than a quarter of a century later, we can add scores more to the former total and many millions more to the latter. That is: Over three billion, six hundred million men, women, and children, or well over half of the present-day human population. The accuracy of the Norwegians' numbers can be questioned, but one thing is certain: that amounts to a *hell* of a lot of carrion.

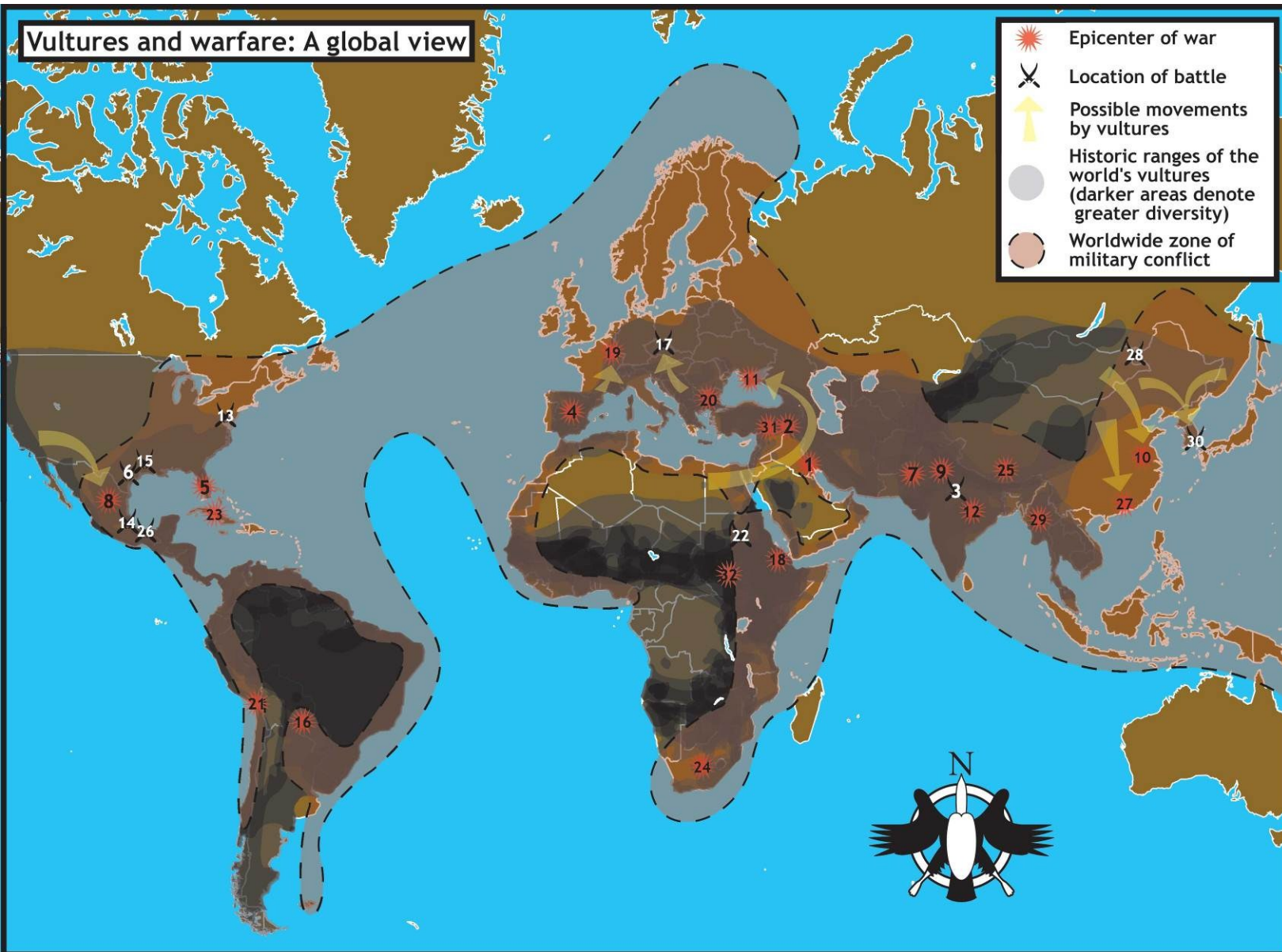
Although, not all battles were productive for scavengers. It would have been of little avail for vultures to attend battles between combatants whose primary objective was to capture enemies for slavery, rather than to kill them. The Aztec empire and some other Amerindian cultures developed a strange twist on this concept; rather than killing the enemy on the battlefield, the greatest glory was heaped upon warriors who captured enemy fighters alive, so that their hearts could later be ripped out as sacrifices to the gods. Some conflicts have lasted for decades while producing only sporadic and minimal casualties; the clashes between North and South Korea since 1953 are an excellent modern example of this. Even such a notoriously bloody period as that of the Napoleonic Wars involved only about 200 days of actual battle, in a period lasting over 20 years. But not a single one of the remaining 7,800 days (give or take a few) went by without war casualties mounting; not from battle, but from disease, starvation, or exposure to the elements. Roughly 1 million soldiers from all involved nations died in battle during Emperor Napoleon's reign; 2 ½ million died from disease,<sup>[5]</sup> and it can be safely assumed that hundreds of thousands of civilians died from war-related causes.

Of course, even battles that did involve killing varied wildly in their lethality. Civilizations that our textbooks describe as “great” had great battles, and the lesser societies (usually) had accordingly lesser battles. Contemporary histories of ancient Greek and Roman battles often outdo themselves in describing how tens, or even hundreds of thousands of soldiers were killed in monumental struggles. Though such figures should probably be taken with a grain of salt, there’s no question that these struggles of antiquity dwarfed most of the battles of medieval Europe; the famous victory of Joan of Arc’s French army over the English at Orléans in 1429 is often considered one of history’s most decisive clashes, yet it resulted in less than 500 casualties on both sides,<sup>[6]</sup> making it little more than a bad football riot by modern standards. Such lower-intensity conflicts often made up for their lack of mass mortality by lasting for many years in an interminable series of small battles. Even so, many periods that we may think of as bloody were hardly so, by our own standards; it appears that fewer men were killed in battle during the entire Hundred Years’ War of medieval Europe than in *any single week* between Germany’s 1941 invasion of the Soviet Union and the fall of Berlin in 1945. At the peak of his power as the Emperor of France, Napoleon Bonaparte liked to boast that he would “spend 30,000 men a month”; on the Eastern Front of World War II, Josef Stalin and Adolf Hitler averaged about that many men every couple of days. For vultures, the Hundred Years’ War was probably a negligible source of food compared with the recurring plagues that were happening at the same time in Europe; but something as monumental as World War II was a once-in-a-lifetime event, which provided a never-to-be-exceeded bounty of carrion.

A bounty, indeed; the features of a typical human battle and the capabilities of a typical guild of vultures complement each other almost perfectly, in a macabre accord of ravagers and scavengers. First, and most obviously, a battle usually results in corpses, both of humans and of riding and pack animals, plus whatever other hapless creatures happened to be in the wrong place at a belligerent time. Battles usually bring other disturbances and disasters in their wake, such as epidemics, burnt crops, massacres of civilians, and forced displacement of local people, who then become refugees; all of this stacks the bodies still higher. Until very recently, practically all battles took place during the day, with most attacks starting at dawn; a good thing for vultures, all of which are diurnal (though some species will stay at carcasses after dark), and so can get at the spoils before mammalian scavengers, which are predominantly nocturnal. The vulturine power of flight renders the birds less vulnerable than land animals to accidental or intentional harm from most weapons, and allows them to range much further than any terrestrial scavengers can in order to reach a battlefield. Vultures have no trouble at all keeping up with even the fastest-moving armies; and if a war settles into static sieges or trench warfare, the non-territorial vulture species can stay nearby and possibly even nest in the area, taking advantage of the temporary carrion surplus until it ends. The traditional months for military campaigning (in the Northern Hemisphere, at least) are in the late spring and summer, especially May, June, and July; this just so happen to be when most vultures are raising their young, which require *enormous* amounts of food to survive. Large battles in heavily forested areas are quite rare, just as most vultures are; great clashes are far more common on the open steppes and plains, where there is ample space for oversized carrion birds to flex their wings. Most of history’s land battles, and almost all of the largest ones, have been fought in the zone of latitude between 45° N and 15° S, where vultures are especially numerous, in terms of both species and individuals. There is a general consensus among anthropologists that the warm climate of this same zone is one of the bigger factors in fostering warlike behavior among people and their cultures.<sup>[7]</sup> And, unlike the more low-key forms of mortality, battles produce very recognizable and unambiguous signs that they are about to happen, are happening, or have happened.



## Vultures and warfare: A global view



- |                                       |                                       |  |  |
|---------------------------------------|---------------------------------------|--|--|
| 1 Lagash-Umma War c.24th century BCE  | 9 Second Sikh War 1848-49             | 17 Koniggratz 1866                                 | 25 British Tibetan Expedition 1903-04  |
| 2 Assyrian Wars 9th-8th centuries BCE | 10 Taiping Rebellion 1850-64          | 18 British Abyssinian Expedition 1868              | 26 Veracruz 1914                       |
| 3 Agra 1803                           | 11 Crimean War 1854-56                | 19 Franco-Prussian War 1870-71                     | 27 Second Sino-Japanese War 1937-45    |
| 4 Peninsular War 1808-14              | 12 Sepoy Rebellion 1857               | 20 Russo-Turkish War 1877-78                       | 28 Khalkhin Gol 1939                   |
| 5 Second Seminole War 1835-42         | 13 Second Bull Run 1862               | 21 War of the Pacific 1879-83                      | 29 World War II: Burma Theater 1941-45 |
| 6 San Jacinto 1836                    | 14 Camaron 1863                       | 22 Abu Klea 1885                                   | 30 Pusan Perimeter 1950                |
| 7 British-Afghan War 1839-42          | 15 Pleasant Hill 1864                 | 23 Cuban Insurrection/Spanish-American War 1895-98 | 31 Turkey-PKK Conflict 1978-present    |
| 8 Mexican-American War 1846-48        | 16 War of the Triple Alliance 1864-70 | 24 Second Boer War 1899-1902                       | 32 Second Sudanese Civil War 1983-2005 |

The sight of a swarm of vultures trailing an army, while foreboding and unlikely to inspire confidence in most of the men marching below, must be counted as one of the most awesome and unforgettable sights in all the world. (That is must also have been a fairly common sight during much of human history only reaffirms Plato's oft-quoted but ne'er-taken to heart remark, "Only the dead have seen the end of war.") A marching army is no difficult thing to spot, or to follow. The indications of its presence are many: disturbed and trampled ground, clouds of dust, the clanking of armor and the creaking of wheels. And, as often as not, a swath of destruction spread behind it. Those indications are important, for vultures can forage much more efficiently if there is some signal of where potential food lies. The ability of huge numbers of vultures to appear at the scenes of great battles, like so many ravenous bolts from the blue, has never ceased to inspire wonderment in humans. The ancient Egyptians held that vultures deliberately followed armies into battle; and that, if a particular soldier was destined to be killed, a vulture would be seen hovering over his head beforehand.<sup>[8]</sup> As part of his

endeavor to interpret the symbolic usage of vultures by the ancient Egyptians, the priest Horapollo wrote that the vulture signified boundaries, "because when a war is about to break out, it limits the place in which the battle will occur, hovering over it for seven days," and for that reason the kings of old ordered their scouts to pay careful attention to the parts of a potential battlefield that were attracting the greatest share of the vultures' attention, so that they might know in advance which side would come off worst in the coming strife.<sup>[9]</sup> In the Indian *Epic of Pabuji*, the eponymous title character claims, with some hyperbole, that "Vultures do not wheel overhead without a battle / Without a battle vultures do not gather and circle!"<sup>[10]</sup> In his *Encyclopaedia on the Properties of Things*, compiled during the mid-13th century, the English monk Bartholomew Anglicus wrote "the vulture followeth the host that he may feed himself with carrions of men and of horses. And therefore . . . when many vultures come and fly together, it tokeneth battle. And they know that such a battle shall be, by privy wit of some kind."<sup>[11]</sup> To the people of medieval Europe, vulture were so mysterious and so unknown that many thought that they roosted in a far-off country, unapproachable by man; yet they appeared unerringly at battles, without any prior suggestion of their presence. Small wonder that magic, vulturine clairvoyance, or "privy wit" seemed to be the only explanations for such unearthly manifestations. No less a personage than the early bishop of Rome Saint Ambrose addressed the issue in his *Hexameron*, asking,

Why are vultures able by certain indications to foretell a man's death? Whence have they derived their knowledge? When two armies face each other in battle array to engage in "tearful war," these particular birds follow in formation as a sign that a great number of men are destined to fall a prey to vultures.<sup>[12]</sup>

Being a Christian, Ambrose was loath to attribute actual thought processes (which might imply free will, which in turn might imply souls) to the vultures, but he was still willing to admit that "they seem to make this observation by the exercise of an instinct analogous to human reasoning."

These beliefs were not greatly exaggerated; some eyewitness accounts do indeed speak of vultures trailing columns of soldiers before a battle had even begun. Prior to the July 1812 Battle of Salamanca in Spain, William Tomkinson of the British cavalry watched as "swarms of vultures cruised overhead" of the British/Portuguese army, numbering 46,000 men, and the French force, numbering 42,000, before either side had fired a single shot.<sup>[13]</sup> Much the same sight greeted the British and Egyptian cavalry forces stationed in Sudan as they rode out to Omdurman on September 1, 1898. Winston Churchill, then a soldier of the 21st Lancers regiment, wrote that as the horse- and camel-mounted troops approached the city,

about a hundred enormous vultures joined us . . . flying or waddling lazily from bush to bush, and always looking back at the horsemen. . . . officers and men alike were struck by the strange and unusual occurrence; and it was freely asserted that these birds of prey knew that two armies were approaching each other, and that this meant a battle, and hence a feast. It would be difficult to assign limitations to the possibilities of instinct. The sceptic must at least admit that the vultures guessed aright, even if they did not know.<sup>[14]</sup>

"Guess aright" the vultures most certainly did; the decisive battle against the famed Sudanese Dervishes would take place the very next day, and by the end of it more than 10,000 men would lay dead. One of the few documented urban wartime maneuvers that involved vultures, the American occupation of Veracruz, Mexico in April 1914, was also preceded by unusual behavior. As soon as the American troops landed, the city's resident Black Vultures left the streets, where they normally dwelled during the day, and perched on buildings and trees, apparently keeping a close watch on the

events to come from their higher vantage points.<sup>[15]</sup> The anonymous authors of the medieval tome *The Book of Beasts and Birds* considered that “whenever two lines of battle are drawn up against each other in lamentable war,” vultures would “follow in a long column, and they show by the length of this column how many soldiers are to die in the struggle. They show, in fact, how many men are destined to be the booty of the vultures themselves.”<sup>[16]</sup> But how can this be; how could the birds, presumably with no understanding of human affairs, know that large groups of men marching in lines or columns signified an imminent abundance of carrion?

The Roman-era naturalist Aelian explained it best: “Vultures even follow in the wake of armies . . . knowing by prophetic instincts that they are marching to war and that every battle provides corpses, as they have discovered.”<sup>[17]</sup> In other words, they know because vultures are, by necessity, learning animals. Random searching is a poor way to find food, even for an animal with such powers of movement as a vulture’s, and an active warm-blooded animal that depends on serendipity for its meals is unlikely to survive for long. Vultures search from the air, watching for carcasses, for other scavengers that may be having better luck than they are, and for anything that may signal the potential of carrion. Any conspicuous event which precedes the appearance of large feasts is likely to be noted, remembered, and, if it recurs, acted upon.

These combinations of inherited instincts and hard-won learning are collectively known as *searching images* to ethologists (who study the behavior of wild animals), and they’re of vital importance to animals like scavengers, whose food supply may be both scare and erratic. Vultures have known for millions of years that it can be profitable to watch and follow large predators on the hunt, to stand as sentinels at particularly dangerous chokepoints along well-used migration routes, and perhaps to associate any large-scale cataclysm with a fresh supply of abundant carcasses. That eon-old storehouse of vulturous knowledge is still useful in the Age of Man; humans on the hunt aren’t very different from other large predators as far as the results of their labors go, their highways are reliably lethal to land animals on the move, and their battles are nothing if not comparable to natural disasters. Except that, for vultures, they are rather more predictable.

It’s easy enough to understand why dedicated scavengers would seek out battles: for the same reason that humans seek out “All You Can Eat” restaurants. But what would vultures do once they found a battle? One could hardly put it more bluntly than does the Old Testament’s book of Ezekiel:

Speak unto every feathered fowl, and to every beast of the field, Assemble yourselves, and come; gather yourselves on every side of my sacrifice that I do sacrifice for you, even a great sacrifice upon the mountains of Israel, that ye may eat flesh and drink blood.

Ye shall eat the flesh of the mighty, and drink the blood of the princes of the earth. . . .

Thus shall ye be filled at my table with horses and chariots, with mighty men and with all men of war, saith the Lord God. [Ezekiel 39:17-20]

But before the fowls are filled, they first must dine; therefore, a cursory look at the mechanics of vultures eating human corpses is in order. There are currently no genuine scientific studies of the manner in which vultures feed on battlefield corpses. As of yet, the closest equivalents to such a study are three papers published in specialist forensic journals: the 1989 article “Canid Scavenging/Disarticulation Sequence of Human Remains in the Pacific northwest” by William D. Haglund, Donald T. Reay, and Daris R. Swindler; the 2009 article “Taphonomic Effects of Vulture Scavenging” by Nicole M. Reeves (both published in the *Journal of Forensic Sciences*); and the 2012



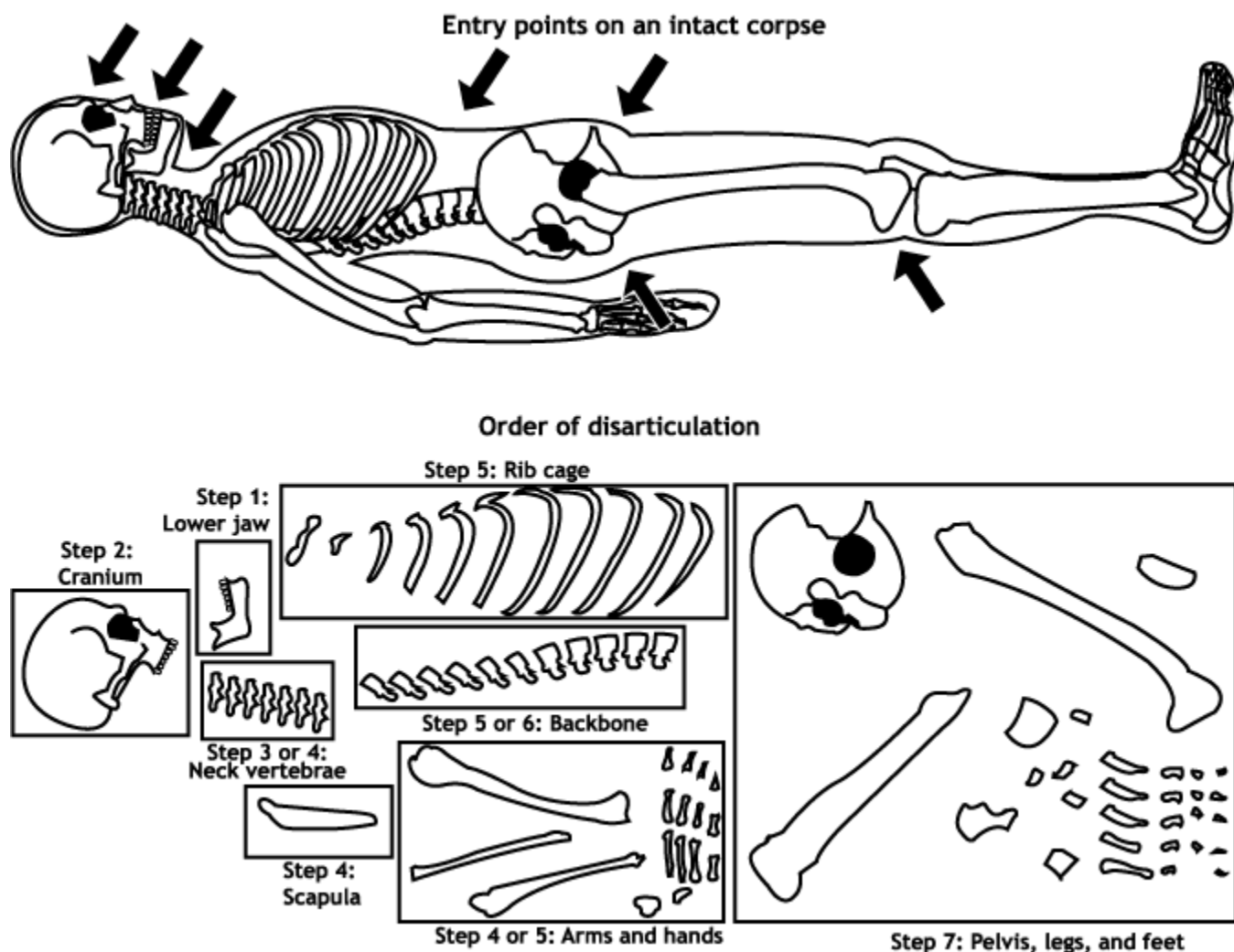
article “Spatial patterning of vulture scavenged human remains” by M. Katherine Spradley, Michelle D. Hamilton, and Alberto Giordano, published in *Forensic Science International*.

The first of these studies took place in the Seattle-King County area of Washington State, in the northwestern US; and many of the human remains that were examined displayed signs of violent death from gunshots, stabbing, or blunt objects, due in no small part to the contemporary presence of a serial killer in the area.<sup>[18]</sup> The corpses analyzed by the forensics team were scavenged primarily by Coyotes and feral Dogs, not by vultures (the only resident vulture species in the area is the Turkey Vulture, and it isn't numerous there), but nevertheless some of the study is applicable to our present topic. The forensics team noted that light clothing had little or no effect on the actions of scavengers; a lightly clothed body would be consumed in much the same manner as a nude one. Heavy clothing or burial in a shallow grave would result in very different scavenging patterns, as would the position of a corpse in an area of high human density, where the scavengers would frequently be disturbed by nearby people. Most pertinently for our purposes, the team noted that the “[c]ause of death, especially when involving invasive trauma, may significantly accelerate the scavenging sequence.”<sup>[19]</sup>

The second of these forensic studies, by Nicole Reeves, utilized Pig carcasses, rather than those of humans; as domestic Pigs are quite similar to humans in terms of general anatomy, diet, and lack of fur, they're considered acceptable substitutes for forensic work when no genuine cadavers are available. Reeves's experiments took place in central Texas, where there are strong populations of both Black and Turkey Vultures. Several Pig carcasses that closely approximated adult humans in weight were exposed in a grassy field, which was fenced off to exclude mammalian scavengers from the experiment. The vultures typically began to feed 24 to 32 hours after the deaths of the Pigs, regardless of whether the carcasses had been exposed immediately after death or if they had been kept in storage for as long as a day after death before being exposed. Despite their relatively small size, these vultures had little trouble in ripping through the skin of the carcasses; the only exception was with a carcass that became mummified by the heat. Though the birds were unable to strip the hide of the porcine mummy, they could still gain access through the natural orifices of the carcass as well as small holes that they made themselves, and so were able to consume the soft tissue inside just as fully as they had with the other carcasses.<sup>[20]</sup> Once the tissue of each carcass had been consumed, the vultures would then disarticulate its skeleton in a clear pattern, starting with the lower jaw and ending with the backbone.<sup>[21]</sup>

Perhaps the most interesting conclusion drawn from Reeves's study was that only very minimal damage was done to the bones by the vultures. By the end of the experiment, many of the Pig carcasses' bones bore shallow scratches from the vultures' bills, but even some bones that were seen to be carried around or flipped over by the birds bore no such markings.<sup>[23]</sup> Reeves further noted that:

Eye orbits of all crania also showed very little damage or markings, and this was somewhat unexpected as anecdotal reports often reference vultures pecking out eyes and damaging fragile orbital bones. While they can use their beaks to vigorously rip flesh from bone, vultures were also observed using their beaks in a very delicate, deliberate manner.<sup>[24]</sup>



This was certainly a marked contrast from the often severe damage done to bones by carnivores in the earlier forensic study,<sup>[25]</sup> and it helps to explain why vultures, rather than mammals, were favored in most rituals of funerary exposure, especially excarnation rituals in which it was important that the bones remain intact. The most important difference between this and the prior forensic study was that while mammalian scavengers would often leave a considerable amount of soft tissue on a cadaver for weeks after its death,<sup>[26]</sup> in Reeves's experiments, *all* of the carcasses exposed to vultures were entirely skeletonized in no more than four days, with the vast majority of the flesh removed between 24 and 36 hours after death. As Reeves pointed out, the timing of vulture scavenging is "radically accelerated" compared to that of mammalian scavengers.<sup>[27]</sup>

The third of these studies was the first to use both vultures and an authentic human corpse – that of an elderly woman, donated by herself prior to her death. As with Reeves's study, it was undertaken in central Texas, with its abundant vultures of the Black and Turkey species; the body and its scavengers were observed remotely with motion-sensing infra-red cameras. Unlike the previous study, however, it got off to a slow start; the only scavenging activity seen during the first week after the body had been exposed was a pair of Black Vultures photographed pecking at the eyes. Vultures did not appear in significant numbers until 37 days after the body had been placed; but when they arrived, they meant business. On that day, the first Black Vulture arrived at the corpse after 11 AM; an hour afterwards, there were more than 30 Vultures present on and around the body. Three hours later, most of the body's soft tissue had been devoured by the birds, leaving little but skin draped over a skeleton; and by the same time the next day, the Vultures had entirely skeletonized the corpse, and

rotated it almost a full 360° in the process (i.e., the head and feet had switched positions). The researchers estimated that the Vultures had engaged in only about five hours of very active feeding over this 24-hour period.<sup>[28]</sup> Other scavenging birds, including Turkey Vultures, occasionally appeared on camera while inspecting the body, but they quickly fled with the onslaught of the Black Vultures; the Blacks were judged solely responsible for the consumption of the cadaver. Black Vultures continued to return to the body for several months afterwards, feeding on whatever connective tissue remained and disarticulating and scattering the skeleton. Interestingly, out of more than 200 bones of the adult skeleton, only a few individual bones (mostly of the leg and arm) were repeatedly moved by the Vultures.<sup>[29]</sup> Maybe Black Vultures, like Dogs, have favorite chew toys!

It would be expected that vultures dealing with battlefield corpses would accelerate the scavenging sequence still further. Such bodies are seldom fully intact, especially since gunpowder-driven weapons became the killing tools of choice. The difference between a body with a small wound and one blasted to pieces by a shell can be likened to the difference between an intact heifer and a lump of ground beef; of course any diner would favor the latter. And the most favored method of killing among our winged diners would undoubtedly be the act of blowing from guns. Not a battlefield death *per se*, blowing was arguably the grisliest (though not the most painful) of all punishments meted out to prisoners of war. After being condemned to be blown, if you'll pardon the expression, a prisoner would be lashed to the muzzle of a large cannon loaded with a full powder charge but no shot or shell, with his belly or back against the bore; and then the cannon would be fired. The unfortunate victim's head, arms, and legs, more or less intact, would be flung some distance away by the blast; but the torso would be all but vaporized, splattering innards across a wide area and upon any spectators who had stood too close to the instrument of execution. The practice of blowing originated in India during the medieval reign of the Muslim Moghuls, when it was a favored punishment for accused traitors, and was adopted by the British during their rule of the same region. During the Sepoy Rebellion of 1857, the imperial British forces frequently utilized blowing when dealing with captured rebel soldiers – who, from their point of view, were guilty of treason – though only if there was time for it instead of the less elaborate execution method of hanging. India's vultures very quickly caught on to the feeding opportunities afforded by blowing. They would they begin circling overhead as the prisoner and gun were being prepared, well understanding what was going to happen; and when the cannon was fired, they would often catch and swallow lumps of flesh that had been blasted into the sky *while they were still airborne*.<sup>[30]</sup> No other carrion-feeding opportunity could be so convenient for the birds, who didn't even have to bother with the trouble of landing on the ground in order to fill their bellies.

In general, explosive devices such as artillery shells, grenades, and landmines act as facilitators for scavengers, allowing them to dispense with the time-consuming penetration stage of the meal and easily pick up the pieces. One might think that the charring caused by explosives and fire would make a corpse inedible; but as vultures around the world are known to seek out wildfires and eat the charred remains of animals that couldn't outrun the flames, a partially burned cadaver isn't necessarily as unappetizing to them as it might appear to be. Upon finding a more-or-less intact human body, the initial challenge that vultures face is the problem of unwrapping it, of penetrating the skin – which isn't much of a challenge at all, even for the smallest vultures. Compared to the large herbivorous mammals that most vultures are adapted to consume, humans are quite thin-skinned. Corpses left after battles often have the additional advantage of ready-made holes, as such bodies have already been pierced by a blade or projectile. The difficulty of opening a battlefield corpse would depend largely on what kind of weapon it was killed with; weapons like double-edged spearheads and



broadwords left massive, ragged entry and exit wounds, while arrows and small-caliber rifle bullets are much less damaging to the tissue surrounding their wounds. But even small wounds could greatly facilitate vultures' entry into the corpse.

In his book *Adventures in Mexico and the Rocky Mountains*, the British traveler George F. Ruxton described the all-pervasive violence in northern Mexico prior to and during the Mexican-American War, when the entire area was under siege by Comanche Amerindian raiders. In October of 1846, Ruxton and his party were riding through Chihuahua State, passing along a road heavily trafficked by the Comanche, when they sighted an outcrop "on which were seated hundreds of sopilotes [Black Vultures]." About a dozen of the birds flew off from something laying near the road as the travelers approached. As Ruxton turned his horse to see what had drawn the vultures' attention,

I found they had been collected on the dead body of a Mexican, partly stripped, and the breast displaying several ghastly wounds. The head had been scalped, and a broken arrow still remained buried in the face, or rather what remained of it, for the eyes and part of the brain had already been picked out by the sopilotes, and a great part of the body devoured. Life did not appear to have been extinct many hours; probably he had been killed the night before, as the birds had but that morning discovered the body.

The brain of an intact corpse would normally be one of the last parts of a body to be devoured by vultures, if they managed to reach it at all; but as the skull of this corpse had already been broken by wounds, the Black Vultures were afforded free access to the fatty and highly nutritious cerebral delicacy. Ruxton concluded his account of this hasty encounter by mentioning that, "We had no means of digging a grave, and therefore were obliged to leave it as we found it; and as soon as I had left the spot the sopilotes recommenced their revolting feast."<sup>[31]</sup>

Clothing can present a problem to vultures, although the ordinary fabric that comprises most uniforms offers little defense against a vulture's sharp bill. While reporting on the War of the Triple Alliance in South America during the 1860s, Richard Burton noted the differences of battlefield attire between the Paraguayans, who wore little except caps, bandoliers, and loincloths, and their Argentinean opponents, who wore more traditional and elaborate uniforms – and whose corpses "lay in uniform, except where it had been removed by the vultures."<sup>[32]</sup> Uniforms intended to act as armor are more troublesome for the birds; faced with a corpse clad in something as tough as tanned leather, the vultures would have to seek out the largest area of exposed skin and enter from there. Metallic armor, such as chainmail or the heavy plates favored by late medieval European knights, was far too hard for any vulture to breach; but it was also far too expensive to be left gilding a corpse, unless this was explicitly required by the standards of ceremonial burial. If a man wearing such protection was killed, his metal carapace would usually be stripped off of his body before it was buried or left in the field, giving scavengers free access to unarmored skin.

Again, there hasn't been any in-depth study of the manner in which vultures, or any other birds, feed on human corpses; except in controlled and artificial situations, such as the sky burial rituals of Tibet, which involve deliberate dismemberment before the cadavers are fed to the birds and so aren't fully applicable to wartime circumstances. In the forensics study of Haglund, Reay, and Swindler, it was found that the Dogs and Coyotes of Washington fed on human bodies in fairly definite patterns of head-to-foot and soft-to-hard. First, skin and muscle would be removed from the face and neck, accompanied by the consumption of the organs in the neck. Then the scavengers would move downward to the chest and arms, removing and disarticulating the latter. Then the chest cavity would be excavated, the viscera removed and eaten; the lower limbs were usually the last parts of the body to be touched. With the sequence complete, all remaining obtainable flesh would be eaten,

then the bones and bone fragments would be gnawed to glean the last remaining nutrition from the corpse.<sup>[33]</sup> Smaller mammalian scavengers with less formidable jaws are accordingly more restricted in their actions; mice and rats, for example, can usually do little with an intact human carcass, other than feed on the soft tissues of the face and extremities, and on the organs of the abdominal cavity.<sup>[34]</sup>

Comparing this forensics study with the other two, which both used vultures, we can see that the biggest differences made by the involvement of vultures are that the birds normally consume all soft tissue before disarticulating the skeleton; and, in order to do so, they're much more likely than mammals to move or flip over the carcass in order to gain access to all parts of it.<sup>[35]</sup> Also, vultures, unlike many mammalian carnivores, are generally uninterested in consuming large, intact bones, with the Lammergeier as the only conspicuous exception. Aside from that, the sequence of feeding by vultures doesn't seem to be greatly different than that of mammals, though the vultures rush through it far more quickly. Vultures coming upon an intact human corpse would first focus on the less-protected areas of the body, particularly the eyes if they're still intact.<sup>[36]</sup> The vulturine gluttony for eyes has become a mini-legend in itself, with many people believing that the eyes are usually eaten first because they "taste better" than the rest of the corpse, or that vultures and other scavenging birds peck out the eyes of a carcass first in order to ensure that it's really dead. More likely, and more pragmatically, the eyes are taken first because they are the softest part of the body, and no challenge at all to pluck out and swallow. For smaller avian scavengers such as kites and crows, eyes and lips may be the only portions of an intact carcass that they are capable of dealing with.

Other soft parts of the body would follow, with the cheeks, lips, and genitals (if uncovered) particularly favored. The limbs might be the next course, with the very thin skin at the insides of the elbows and backs of the knees easily torn open. Gaining access to the torso would be more difficult, particularly as the heaviest clothing (or armor) normally covers this part of the body. For birds unable to penetrate the skin and whatever other covering it had, an entry would have to be forced through the anus, groin, or neck, and then enlarged by cumulative effort. With a number of vultures present, the side of the corpse that faced away from the ground would quickly be stripped of flesh, forcing the birds to roll the cadaver over in order to finish it. Turning the body of a fully-grown man over would be a difficult task for a single bird, but several large vultures working together could easily roll it over, or even drag it away to a more secluded spot if they so desired.

The most detailed graphic depictions of vultures feeding on wartime casualties are found in some Near Eastern works of art, which were commissioned by rulers to celebrate great victories and which often include depictions of vultures eating the corpses of slain enemies. Aside from showing vultures feeding on whole corpses on the ground, some of these "victory murals" also show the birds in flight (below), carrying body parts in their bills or talons. It's an open question whether such depictions represented an artistic convention, or were intended to be portrayals of actual vulture behavior at battles. Some vultures will carry off parts of carcasses to feed on them elsewhere; but



griffons, which are the most numerous large vultures in the Near East and thus presumably were the species most often depicted, do not, at least according to present-day ornithologists. It is certain that pictures of vultures carrying off entire human heads, which would be impossibly

cumbersome in the air, are more imaginative than realistic.

There still remains the question of how much meat a human cadaver contains, and of how many vultures it could feed. Present-day adult humans average about 140 pounds (63.5 kg) for both sexes combined; and although the bodily proportions of humans are nothing if not inconsistent, we can accept 140 pounds as a baseline weight for a corpse. About 20 pounds (9 kg) of this mass is accounted for by the skeleton, with the skin, tendons, and ligaments comprising 10 pounds (4.5 kg) or so. The remaining 110 pounds (50 kg) are comprised largely of muscle and fat, which are what most vultures are after. And they can go after it with a vengeance; a large griffon can eat three and a third pounds (1.5 kg) of flesh in a single sitting, meaning that it would take fewer than three dozen hungry griffons to completely skeletonize a human cadaver in the space of an hour or so. Due to the vultures' efficient system of searching for carrion, a large carcass usually attracts more birds than it can actually feed; and a continual stream of hungry vultures can demolish carrion with speed that makes the ravenousness of other scavengers look positively leisurely. The amount of time that it would take vultures to dispose of a body would depend on whether their meal was interrupted, as it often would be during or after a battle; but once a human corpse had attracted vultures in numbers, it would almost certainly be bereft of flesh at the end of the day.

In his memoir of the Sepoy Rebellion of 1857-58, the British general Charles Gordon recorded the battle against the Indian rebels at Chitowrah, in present-day Uttar Pradesh, and noted that when his force returned to camp at the end of the day, "we again traversed the ground over which [an earlier] running fight . . . had taken place; the rebels killed in the early part of the day were represented by so many masses of skeletons, blood covered, some few shreds of flesh still adhering, thus telling what had been the work done in the interval by jackals, dogs, and vultures."<sup>[37]</sup> During the Spanish-American War in Cuba, the American journalist George Kennan noted a chronological segregation between the island's primary scavengers: Turkey Vultures, and land crabs, which "like Cuban vultures, are haunters of battle-fields; but they seek the dead at night, while the vultures drink the eyes and tear off the lips of an unburied corpse in the broad light of day." After witnessing a few such sights, he "formed the opinion, which subsequent experience only confirmed, that they [the crabs], with the bloody-necked Cuban vultures, are the most disgusting and repellent of all created things."<sup>[38]</sup> Nevertheless, those bloody-necked birds were "never absent from Cuban skies," and Kennan saw them "hang in clouds over every battle-field, fort, city, and village on the island."<sup>[39]</sup>

Even these notoriously unpicky scavengers might neglect to do said work upon a corpse if they found it unpalatable for one reason or another. In the border areas of Mexico and the southern United States, there's a curious, longstanding belief that vultures and other scavengers will refuse to eat the bodies of ethnic Mexicans. This uncharacteristic refusal is attributed to the Mexicans' habitual consumption of chile peppers and other spicy foods, which (it is said) makes their flesh unpalatable, even to habitual scavengers. This belief appears to have first arisen during the Texas War of Independence of the 1830s, when immigrants to the Texas area from the United States, the Texians, fought the Mexican government in order to secede from Mexico.<sup>[40]</sup> Following the decisive Battle of San Jacinto in 1836, the Texian soldier Noah Smithwick recalled:

The dead Mexicans lay in piles. . . . The buzzards [Turkey and/or Black Vultures] and coyotes were gathering to the feast, but it is a singular fact that they singled out the dead horses, refusing to touch the Mexicans, presumably because of the peppery condition of the flesh. They lay there unmolested and dried up.<sup>[41]</sup>



Similarly, during the Mexican-American War a decade later, some American veterans claimed that bodies of dead Americans were often found skeletonized by scavengers, while dead Mexicans were left untouched,<sup>[42]</sup> although these claims are contradicted by most other firsthand accounts of the war. In 1879, a Texas Ranger named Jim Gillett crossed the Rio Grande into Mexico in pursuit of a band of Apache raiders, and came across the remains of 29 Mexicans killed by the Apaches some two weeks before. Despite their age, the corpses were perfectly intact, Gillett wrote, because, “It is a strange fact, but one without question, than no wild animal or bird of prey will touch the body of a Mexican. . . . If they had been the bodies of Indians, Negroes, or Americans, the coyotes, buzzards and crows would have attacked them the first day and night.”<sup>[43]</sup>

Even corpses that the vultures *were* willing to eat could have second-hand effects on the birds, because an entirely sober soldier is and always has been a rarity. It's a time-honored and well-proven tradition for warriors to fortify themselves before battle with any easily ingested, quick-acting drugs that will enhance bravery, mitigate dread, and dull the pain of wounds, be they the narcotics of the Aztecs or the British Army's traditional tot of rum – or the steroids and amphetamines of present-day paramilitary contractors. Though vultures would ingest only small amounts of these substances through the flesh of humans, their smaller bodies would also be much more susceptible to their effects. Battlefield accounts of vultures often speak of the birds as unusually incautious and daring, sometimes to the point of ignoring or attacking visibly armed men. Secondary intoxication could help to explain at least some of these reports; certainly, drunken *humans* have a propensity to pick fights with much stronger adversaries.

Peppers and drugs aside, it's clear that few battlefield corpses lasted long when vultures were present in numbers; most were probably skeletonized in a matter of hours. By the time that stage was reached, there would be no way to tell how the cadaver had met its demise, excepting any obviously fatal wounds visible on the bones; indeed, there would be no way to tell whether the person was actually dead when the vultures began consuming them. This mortal ambiguity is one of the things that led to stories of vultures killing wounded or unconscious soldiers; just as shepherds and ranchers seldom gave raptors the benefit of doubt when seeing the birds eating livestock, soldiers often jumped to the conclusion that the vultures were not content to wait for death to sweep away their compatriots, and that the great birds took it upon themselves to hasten its arrival. But we will return to this. In the end, the vultures would depart leaving behind them a stripped and more-or-less disarticulated skeleton, identifiable only by whatever personal possessions lay nearby, and scraps of skin and clothing. There would be no doubt of their one-time presence, however; it's always very obvious when a carcass has been frequented by vultures, as the birds trample paths around their food and leave the bones and much of the surrounding area covered with their droppings, and with down and feathers that were pulled free and discarded during their labors.<sup>[44]</sup>

Some battlefield accounts suggest that once they arrived at battles, vultures were more interested in dead Horses, Mules, and other riding or pack animals than they were in dead humans. Given that most modern military forces are entirely mechanized, it's easy to forget just how numerous domestic animals were in the armies of the past, how brutally they were treated, and how frequently they died. A French expedition to Algeria in 1901-02 required no fewer than 35,000 Camels to haul its supplies; all but 10,000 of these animals died along the way, largely because the French soldiers had no idea how to care for them, let alone how much exertion they could withstand before dropping dead. One historian wrote of the expedition, “I do not think that there has been a massacre comparable to that of 1901. The jackals and the vultures along the way were overwhelmed by the immensity of their task.”<sup>[45]</sup> Yet there were far greater massacres; during the Second Boer War of 1899-

1902, the British Army shipped 518,000 Horses to assist in fighting the rebellious colonies in southern Africa. 347,000 of those Horses died there, almost entirely from non-battle causes.<sup>[46]</sup> The British soldier Filson Young recalled that during that war, the detritus of his army made it very easy to follow:

The track of the army was marked for us in two ways—one ludicrous, the other tragic; both unmistakable. For all along the way bright tin biscuit canisters . . . shone like diamonds in the sun; and all along the way, at intervals, tired and sick old cavalry horses stood by the roadside, each surrounded by a crowd of foul aasvögels [Cape Griffons], the vultures of South Africa, waiting.<sup>[47]</sup>

Young further noted that rides through the African countryside “would have been delightful but for the dismal trail left by the war—carcasses of horses and oxen lining the road, a carcass every few hundred yards surrounded by a gorged flock of aasvögels.”<sup>[48]</sup> The use of domestic animals in warfare declined during the 20<sup>th</sup> century, and armed forces are popularly believed to have been entirely mechanized during World War II; but Horses were still used in great numbers by most combatants. The combined equine contingents of the German Wehrmacht and the Soviet Red Army totaled seven million animals, and most of these, too, died in service.

These animals didn't usually perish in the “glory of battle,” but in the mundane suffering of disease, starvation, or overwork. Still, until cavalry as a fighting arm became largely obsolete early in the 20th century, both horsemen and their chargers were among the carcasses picked over by vultures. The cavalry charges of the Franco-Prussian War of 1870-71 were attended by swarms of Eurasian Griffons, which mostly ignored deceased cavalrymen in favor of their equally deceased mounts.<sup>[49]</sup> Going after bodies of Horses makes good sense from a scavenger's standpoint; not only do Horses offer far more (and possibly more palatable) meat than humans when and if their tougher skin has been penetrated, but they were likely to be left where they fell, instead of being buried or removed from the battlefield. If a Horse couldn't be taken along during on a retreat, it was often slaughtered to prevent enemy forces from using it. Nor were wounded Horses given the care and protection afforded to wounded soldiers; unless a badly injured Horse was deemed especially valuable, it was summarily dispatched and left to rot. During the Sepoy Rebellion in India, the British soldier Reginald Wilberforce recorded that his army maintained a distinct “burying-ground” for pack animals that had died, where “hither were drawn the dead bodies of the horses and camels” – and once even an Elephant. But the name of this bestial cemetery was a misnomer, for “the bodies were not buried; no earth was ever disturbed for them; they were drawn there, and left for the adjutants [storks] and the vultures, and they let us know, especially the elephant, that they were unburied.”<sup>[50]</sup>

Soldiers themselves were often responsible for massive mortality among their animals, especially in the case of recruits from urban areas who had little or no experience with livestock. When Britain sent a punitive expedition to Abyssinia (Ethiopia) in 1868, its army offloaded countless pack animals at its landing point. But as the area was largely devoid of food, and the soldiers were neither trained nor equipped to care for the animals properly, “presently the desert for miles round the base was littered with swollen carcasses,” which attracted hundreds of vultures during the day.<sup>[51]</sup> George Von Kromer, a veteran of the battles in Cuba during the 1898 Spanish-American War, even managed to perform a bit of forensic ornithological research while on drinking water detail:

On one of our trips to the river, I noticed a dead horse ballooned up in the high grass near the trail. Buzzards [Turkey Vultures] flew off when we appeared. The next day the horse was not as swollen. My curiosity was aroused, and as I watched the vultures, I learned some interesting facts. The buzzards first

pick the eyes out of a carcass. Then they eat their way into the other end of the animal [i.e., the rectum] -- using this opening to move in and out. I almost caught one bird that was so gorged it could hardly fly.

However, when Kromer reported the horse to his unit's captain, his water detail was ordered to bury the horse immediately. His fellow soldiers were "not too happy with this assignment and told me, in no uncertain terms, to keep my big mouth shut from now on."<sup>[52]</sup>

These same soldiers sometimes depended on their steeds for food. During the harsh winters of the Crimean War of 1854-56, British, French, and Turkish soldiers were frequently so bereft of rations that they had to scramble to butcher Horses, which dropped dead with some regularity, before the war's resident vultures devoured them.<sup>[53]</sup> For soldiers forced to fight in particularly desolate landscapes, vultures and other scavengers might be the only potential source of food. In his memoir of the Second Sudanese Civil War in the 1990s, the former child soldier Emmanuel Jal recounted that not only would he and his comrades shoot and eat the vultures and hyenas that trailed their lines, but also that during a prolonged retreat, some soldiers rigged the bodies of their recently dead comrades with grenades in order to kill scavenging hyenas for food.<sup>[54]</sup> Jal recalled that, "Many refused to eat vultures, which feasted on the dead, but I ate their meat to survive."<sup>[55]</sup>

At the battles themselves, vultures behaved with a curious mix of daring and caution. Once a battle had begun, they were likely to keep their distance from heavy fighting, instead circling overhead or perching on a nearby tree or cliff until the combat died down. There are few eyewitness



descriptions of vultures actually darting into the midst of battle to feed while combat was still going on, though any potential eyewitnesses probably had more urgent matters to look after. The birds had good reason to be wary; after the invention of missile weapons, and especially after the appearance of muskets and field artillery, battlefield lethality became increasingly indiscriminate. With musket balls and shrapnel flying every which way, nothing was safe during a pitched battle, not even a flying scavenger. We have no detailed descriptions of the behavior of vultures in this situation, but a reasonable facsimile is provided by the behavior of another war bird: Old Abe, the Bald Eagle mascot (left) of the 8th Wisconsin Regiment during the American Civil War. Unlike most military mascots, Old Abe was often taken into battle with his unit, the rationale being that going into the breach with a living embodiment of their nation's symbol beside them -- particularly one named for that nation's leader -- might have a stiffening effect upon the Union soldiers' morale. If left untethered, Old Abe preferred to stay in the air during battles, soaring slowly overhead until the shooting ceased. The Eagle particularly feared artillery fire, and in order to avoid it he would climb

so high that he was almost invisible to the naked eye. Once the shooting ceased, he would faithfully return to his unit.<sup>[56]</sup> He later became fairly inured to the sound of cannons; although he was still troubled by intense musket fire, which caused him to "give forth fierce screams" as he "pranced up and down" on his perch.<sup>[57]</sup> His fears were not without good cause; at least once, the Eagle escaped from his handler during a battle and flew straight into a Confederate fusillade. He came out on the other end without injuries, but with his wing and tail feathers torn to shreds by the musket balls.<sup>[58]</sup> It unfortunately isn't a matter of record whether Old Abe ever attempted to partake of battlefield



carrion; considering the ingrained scavenging habits of Bald Eagles, his handlers must have had to watch him closely to keep him from doing so.

It's probable that, like Old Abe, vultures that attended battles attempted to keep out of harm's way as far as possible until the danger had passed. Nevertheless, there were times when vultures jumped the gun (literally) and sought out a battlefield before its battle had even abated. Here is Samuel Chamberlain of the US Army describing the "Rackensacker Massacre" of February 1847, during the Mexican-American War, when irregular Arkansas volunteers attacked Mexican villagers in retaliation for the killing of one of their own men:

Overhead circled a cloud of the ubiquitous Zopilotes or Vultures that would occasionally claw down on something on the ground ahead. On reaching the place we found a "greasser," shot and scalped, laying on the ground yet alive. . . . only his feeble action kept the fierce Harpies from falling on him while yet alive . . . soon faint shouts and curses, cries of women and children reached our ears. . . . The cave was full of our volunteers yelling like fiends, while on the rocky floor lay over twenty Mexicans, dead and dying in pools of blood. . . .<sup>[59]</sup>

Considering that the massacre took place in a sheltered spot hidden from the sky, those *Zopilotes* must have been attracted to it by the shouts of the soldiers and their victims. Similarly aggressive (but much bigger) vultures were encountered by another American soldier, Addison Terry, during the early months of the Korean War. Terry recalled seeing "at least a hundred" vultures circling overhead following the August 1950 attack on Sochon Pass. But they didn't keep their distance for long:

One of the more aggressive birds began to swoop near to the ground now, and I watched it with childish wonder. It made several close passes directed (I assumed) at me and then came straight at my chest. I stared wild-eyed as the bird flapped its wings to stop its forward motion and then settled down, not on my chest, but on the sergeant, who lay dead next to me. The bird began picking at the man's field jacket, which had been placed over his face. I became furious. I swung wildly at the creature with the butt of my carbine and it made a hasty withdrawal, laden with every curse I could bestow in the capacity of my breath, voice, and vulgar vocabulary, which at this time was extensive.<sup>[60]</sup>

Both of the vulture species involved in these incidents – the Black Vulture in Mexico, and the Monk Vulture in Korea – are widely noted for their boldness and assertiveness in pursuit of food. Even so, it's remarkable that the birds were willing chase down corpses in such circumstances, with clearly armed men still in the vicinity. Most animals will flee the sound of gunfire, whether it's directed at them or not, but vultures can become quite accustomed to it. During the 19<sup>th</sup> century, Lammergeiers in northern India were said to make a habit of lounging near active rifle ranges,<sup>[61]</sup> and many big game hunters have mentioned vultures perching or circling unconcernedly while they were blazing away at some nearby large mammal. It's only a small step from the birds learning to be blasé about gunfire to making the realization that such noise indicates the presence (or potential) of carrion. The equation *gunshots = food* is simple enough to understand, even for birdbrains. For the few vultures with a functional sense of smell, the stench of battle also proved to be an enticing aroma. After the Second Battle of Bull Run during the American Civil War, a Union soldier named Stephen Weld wrote of coming upon a house inside which were four Confederates, "three mortally and one severely wounded." One of these men had died during a botched leg amputation, "and those horrible turkey buzzards could be seen hovering in air over the house, smelling even so soon the dead man. It was a horrible sight, and made one feel what war was."<sup>[62]</sup>

As conspicuous as a battle is to the ears or nose, the eyes of a vulture could never miss it. Vultures can spot corpses better than anyone or anything else. After studying Eurasian Griffons in Spain, the biologist Claus König concluded that it was the attitude and positioning of a carcass - specifically, laying on its back or side with its legs stretched out - that informed the vultures of its lifelessness, and that visual stimuli like visible blood and bare flesh induced the Griffons to approach it more quickly.<sup>[63]</sup> During wartime, blood (or rather, its characteristic color) must be the single most important attractant for vultures, who have seen enough of it to know what it signifies. Throughout history, eyewitnesses have spoken of battles causing rivers to run red and staining the earth crimson; no vulture could possibly miss, or misunderstand, such sights.

The frequency and spacing of corpses varied greatly from battle to battle. In general, battlefields have become larger and emptier as advancing technology has allowed killing to take place at greater distances; but since groups of humans tend to bunch together when danger threatens (an unwise thing to do in the face of, say, artillery fire), battlefield corpses are often found in masses, with one area mysteriously empty of them and another so thickly covered with them that a vulture could bound across the bodies without ever touching the ground. Even a single, isolated cadaver can quickly attract scavengers by the swarm, as the Mexican-American War veteran Samuel Chamberlain discovered when he went to check on a sentry who had been posted at the aptly named *El Paso del Muerte*:

I had seen for miles a flock of vultures circling around in the air above this place, and was somewhat prepared for the horrid sight that greeted me at the end of the stone wall. The body of an American lay in the road, surrounded by a yelping pack of Coyotes; the air was full of vultures, Turkey buzzards, and Eagles, while on the body was seated an enormous bird like a Buzzard, in fact, a Condor, who kept all the rest at a distance while it finished its disgusting repast. As the birds will not attack a man when alive, the poor fellow must have been alive the night before, as in a few hours, the bones would become as cleanly picked as if done by a surgeon.

Chamberlain added that as he approached the corpse, “The Condor bustled up like a Turkey Cock, and seemed inclined to dispute my passage, but on drawing my sabre, he hopped off, and run down the road, then springing on to a rock, the “Harpy” succeeded in getting on wing and flew away.”<sup>[64]</sup>

Aside from having a decidedly detrimental effect on morale, battle corpses left intact and above ground caused hygienic nightmares for the living, by providing fertile nurseries for disease-spreading flies and rodents, polluting drinking water, and generally making things miserable. If circumstances allowed it, the bodies of men killed in battle were usually either cremated or buried in the field as quickly as possible. Happily for scavengers, it is very difficult to build a fire hot enough to completely incinerate a body, and on-the-spot cremation usually cannot thoroughly annihilate a corpse - unless flammable liquids are available. The aftermath of the Battle of Veracruz in April 1914 left the American occupying forces with 19 of their own dead, as well as at least 200 dead Mexicans strewn throughout the city. The city’s resident Dogs and Black Vultures took free advantage of this unusual bounty, with some bodies attracting scores of the former and hundreds of the latter. After driving off the scavengers and attempting a few burials, the Americans turned instead to their abundant supplies of crude oil for a solution, piling up Mexican corpses, dousing them, and setting them ablaze.<sup>[65]</sup>

Burial presents more of a problem for vultures; since none but the three Turkey/Yellow-headed species of the New World have any sense of smell, there’s no way for most of them to find a buried corpse, and no way to exhumate one unless its grave is very shallow. But in this case, the vultures’

mammalian competitors can become inadvertently helpful: dogs, hyenas, and sometimes even bears and big cats can smell decomposing flesh through several feet of earth, and will avidly dig it up. Except for hyenas, which can eat just about any form of animal matter, these carnivores always leave some edible material behind for other scavengers. Besides, adequately burying a human body, even at the best of times, is a not-inconsiderable task; and it becomes completely impractical in subfreezing temperatures. During the Russo-Turkish War of 1877-78, a Prussian officer named Richard Graf von Pfeil accompanied the Russian Army as it advanced through what is now Bulgaria. Upon returning to the mountain town of Kazanlak, where a recent battle had been fought,

we saw great bands of dogs, numbering fifty or sixty each, and also vultures and crows, gorging themselves with the flesh of horses and men. A sad sight! As we afterwards learned, most of the bodies were allowed to be disposed of in this way, as there were no hands to make grave-pits in the hard frozen soil. After the snow melted, many hundreds more of bodies were found in the hills and gorges . . . which poisoned the air of the whole neighbourhood. It was therefore better to leave them to the beasts and birds of prey.<sup>[66]</sup>

Another foreign observer of that war, the Briton Archibald Forbes, found a similar situation on a hill overlooking the city of Plevna, where some particularly intense fighting had taken place:

The successive ridges of the mountain and the intervening depressions . . . were thickly strewn with the corpses of Russians and Turks who died so freely on those bloody days. A few of the bodies—for the most part of Turks—had been sprinkled over with a few spadefuls of earth, but most of the dead lay just as they fell, except that they had been stripped and that the carrion dogs had torn limbs away and the vultures had been busy with the eyes. . . . it is no exaggeration to say that the whole region of which Plevna is the centre was strewn thickly with the ghastliest mementoes of the longer and bitter struggle. . . . One was constantly finding in the least expected places long-unburied bodies, or sodden in the path the limbs of fellow-creatures who had fallen and lain till the passing footsteps of the living trod hard the thin layer of earth over the remains.<sup>[67]</sup>

The simple alternative to burying casualties hastily and inadequately is to not bury them at all. This provides a free hand to scavengers, of course, but the condition of their prospective meals may still vary widely. While documenting the Peninsular War in Spain, one British journalist noticed that corpses that were left exposed to the sun “immediately became a mass of corruption,” while those that lay in the shade and were moisturized with dew or rain “became as hard as leather, and they would remain in that state for a very considerable period, unless they were devoured by wild animals or birds of prey.”<sup>[68]</sup> When faced with thousands of masses of corruption, often piled up two or three deep in what the military historian John Keegan dubbed “shapeless sprawling hummocks,”<sup>[69]</sup> not a few armies would have concluded that removing them from view simply wouldn’t be worth the effort, and elected to leave them to the vultures.

Vultures and other scavengers are usually without the luxury of being able to choose between this or that meal; most of the time, carrion is so scarce that they must be ready and willing to eat whatever they come across. The aftermaths of battles provided a welcome exception to this rule; there might be so many bodies left by a massive slaughter that older or more far-flung corpses would go uneaten by the biggest and most mobile birds, as the vultures left them behind to devour fresher or more conveniently located meals. This provided a window of opportunity for small vultures that ordinarily couldn’t feed on large carcasses; with their larger and more powerful relations engaged elsewhere, they were left in the position of the proverbial kids in the candy store. Willoughby Verner



recorded just such a situation in 1885, when he visited the aftermath of the Battle of Abu Klea in Sudan:

The bodies . . . lay about in hundreds, mixed with scores of the swollen carcasses of camels and horses. Apparently both the great Marabou Storks . . . and the larger Vultures . . . had given up the task of clearing up the battlefield as one quite beyond their powers and had gone to the more convenient scenes of our fighting near the Nile, where I had seen many congregated. But the Egyptian Vultures were evidently not so easily daunted and pairs of these evil-looking birds were to be seen amid the throng of white coated men . . . stalking from one [body] to another as if undecided where to recommence operations.<sup>[70]</sup>

The overabundance of carrion produced by exceptionally costly or wasteful (pick your euphemism) battles always attracted vultures from far away, due to their highly efficient system of searching over great distances. In one of the most disarmingly honest statements ever made by an employee of the British Empire, the ornithologist and Indian Imperial Policeman Hugh Whistler noted in his *Popular Handbook of Indian Birds* that as the common White-rumped Vulture habitually wandered long distances in its search for plentiful carrion, "our [military] campaigns on the North-west Frontier usually lead to a temporary extension of its distribution in areas where it is not normally found."<sup>[71]</sup> Samuel Chamberlain's claimed encounter with a California Condor in northern Mexico during the Mexican-American War easily takes the cake as the farthest-flung credible sighting of that rare species during the past two centuries.<sup>[72]</sup> As we saw [in Chapter 4](#), during the Chinese Taiping Rebellion of 1850-64, Monk Vultures that probably originated in Mongolia appeared in considerable numbers along the lower reaches of the Yangtze River to clean up the thousands of corpses left in its aftermath,<sup>[73]</sup> a journey that likely involved at least 700 miles (1,100 km) of flight over unfamiliar terrain. The presence of the same species in southeastern Korea during the Battle of Pusan Perimeter in 1950 would seem to be less incongruous; Monk Vultures do normally migrate into Korea during the winter, after all. But that battle took place during the *summer*, meaning that the Monks, displaying remarkable behavioral flexibility, broke their normal migratory patterns to partake of its results.

In his book *Hong Kong Birds*, the British naturalist G. A. C. Herklots mentioned that in 1938, during the Sino-Japanese War that led to the Pacific portion of World War II, three naval officers spotted a Monk Vulture in the northern mainland portion of Hong Kong. This sighting was thought by Herklots to constitute the first record of a Monk Vulture within the borders of the British colony. Why the Vulture had appeared there, so far from the typical range of its species, is anyone's guess; but Herklots noted that at the time of the sighting, "fighting [between Japanese and Chinese Nationalist forces] was in progress a few miles away across the border." The next sighting of Monk Vultures in the area came under less propitious circumstances for the British. When Japan declared war on Britain and conquered Hong Kong at the end of 1941, the Japanese military interned all of the enemy nationals found in the colony, many at the Stanley Internment Camp in the southeastern part of Hong Kong Island. This was still further from the usual haunts of the Monk Vulture (and getting there involved a short sea crossing, to boot); nevertheless, Herklots recorded that "when we arrived at Stanley for our long internment . . . [we] were greeted by a few of these enormous birds of ill omen. . . . Later, from the camp, we occasionally saw one or two on the sea shore near Stanley village." After the end of World War II, however, sightings of Monk Vultures anywhere near Hong Kong were extremely rare.<sup>[74]</sup> Even more remarkably, two Monk Vultures were shot in northwestern Taiwan on December 28, 1949, a little over two weeks after the Nationalist Chinese government retreated to that island following the victory of the Communists in the Chinese Civil War. No fighting took place on Taiwan

itself that could have attracted the vultures, but the presence of a pair of the birds so closely following the retreat, plus multiple battles on the neighboring mainland and on smaller islands in the Taiwan Strait, is unlikely to be mere coincidence – particularly since there is only one other confirmed record of a Monk ever seen in Taiwan, in 1912.<sup>[75]</sup> It's difficult to avoid the conclusion that in this area, at least, war provided opportunities for the vultures that didn't exist either before or afterwards.

Wars are of course famous for relaxing inhibitions among soldiers and civilians alike, but they seem to have much the same effect upon vultures, especially upon vulture distribution. When large-scale fighting breaks out, no matter where it is or how long it lasts, the birds can be expected to find their way to it. The period from the beginning of the Franco-Prussian war to its climax at the Battle of Sedan lasted only six weeks, but in that time the vulture population of northern France exploded, with griffons flying as far as 200 miles (320 km) north of their strongholds in the Alps for the month-and-a-half's feast. The Russian naturalist Peter Simon Pallas, who traveled to the Crimean Peninsula in the 1790s, found that "the common black [Monk] vultures are frequent; and, especially in winter, boldly enter the plains in search of carcasses," and that they were "sometimes accompanied" by Egyptian Vultures.<sup>[76]</sup> Yet he seems not to have encountered any Eurasian Griffons, a species that was reported in huge numbers during the Crimean War sixty years later. These Griffons were probably able to colonize the Crimea because of the temporary abundance of food afforded by the fighting. All of those birds had to come from somewhere; and, a few years after the end of the Crimean War, H. B. Tristram recorded that, "The Arabs believe that the vultures from all North Africa were gathered to feed on the Moscow infidel in the Crimea, and declared that during the war very few "Nissr" [Eurasian Griffons] were to be seen in their accustomed haunts."<sup>[77]</sup> In other words, the North African vultures moved to an entirely different continent, with correspondingly drastic differences in ecology, for the sake of the Crimean War's bounty. The number of vultures that appeared during a large campaign could rapidly become incalculable; during his search for the source of the Nile in 1790, the British explorer James Bruce encountered a marching army in Abyssinia, and wrote that "the birds form a dense roof above [the soldiers] stretching for several miles, and when the army moves into camp the ground as far as the eye can see is completely covered with them."<sup>[78]</sup>

After battles ended, soldiers weren't necessarily home free, nor was the bounty of the vultures necessarily finished. One of the first things that any military tactician must learn is that nothing in warfare is more dangerous than to retreat while being pursued by the enemy. Soldiers in a retreat tend to give in to fear; they may throw their weapons and equipment away in order to flee more quickly, and their battle formations may disintegrate into unorganized mobs. In such a situation, it only takes one panicked man to inflict an entire army with desperate, uncontrollable terror; and that's when a retreat becomes a rout. But sometimes the enemy won't pursue a retreat, either because they are too exhausted or because cultural customs prohibit crushing a defeated foe. Such customs were once quite common in the world; the warriors of many societies saw no point in slaughtering enemies that were already defeated. However, the concept of "total warfare" was developed to lethal perfection in the latter half of the fourth century BCE by the Greek general Alexander the Great; and due in no small part to Alexander's huge conquests, it is now the norm in military thinking. Prior to his campaigns, war in much of Europe and Asia was a ritualized affair (as it continued to be in most of the rest of the world) resembling an exceptionally violent sporting match, in which the dead would be exchanged after the initial clash, both sides then departing without further bloodshed. The portions of Alexander's battles where face-to-face combat took place weren't especially bloody - they've been described as "little more than glorified shoving matches" - but afterwards, the enemy force would not be permitted to leave quietly. Instead, it was pursued, attacked, and sometimes massacred. After such

savagery, an amicable exchange of the dead was out of the question. In most large battles since then, the majority of casualties from fighting were sustained after one side or the other broke and ran (or surrendered), not during the primary clash of arms.

Retreats or panicked routs are dangerous in the extreme for armies, and therefore very profitable for vultures to follow. Samuel Chamberlain remembered the aftermath of a February 1847 battle in northern Mexico, during which his unit “passed terrible evidence of the complete rout and fearful sufferings of the once formidable host of [the Mexican general] Santa Anna. Bodies of man and beast, part eaten by vultures and coyotes . . . lay scattered the whole distance.”<sup>[79]</sup> The wild chases that sometimes happened after hoplite battles in ancient Greece resulted in strings of corpses, laying where they had been cut down from behind, that stretched for miles.<sup>[80]</sup> An army in flight usually can't or won't carry along severely wounded men, let alone bury its dead; and if the retreating army must cross natural barriers like rivers or mountains, those hazards only multiply the casualties. In hostile terrain, even a relatively calm and unpanicked journey like Hannibal of Carthage's march over the French Alps in 218 BCE could be more dangerous than any toe-to-toe slugfest; over half of his 50,000-strong army died from cold, falls, or the attacks of mountain tribesmen, though all of his war elephants are reputed to have survived. The disastrous British retreat from Kabul in January 1842 was dogged by both scavenging vultures and scavenging tribesmen. The tribesmen stripped weapons and supplies off of the 12,000 soldiers and camp followers who died in the mountain passes of the Hindu Kush, and afterwards, the vultures picked their bodies clean.<sup>[81]</sup> A more recent military mountain trek was the epic, 6,000 mile (9,660 km) Long March of the Chinese Communists; in late 1934, about 100,000 men and women set out from Kiangsi in the southeast of China, retreating northwest before the Nationalist armies of Chiang Kai-Shek. Near the end of the march in summer 1935, the army had to cross several high mountain ranges in the western province of Szechwan. A survivor by the name of Tung Pi-Wu described the crossing of the first of those ranges, the Dauxe Mountains:

[W]e started straight up the mountain, heading for a pass near the summit. . . . As we climbed higher and higher we were caught in a terrible hailstorm and the air became so thin what we could hardly breathe at all. . . . Men and animals staggered and fell into chasms and disappeared forever. Those who sat down to rest or to relieve themselves froze to death on the spot. . . . The last peak in the range . . . was terrible. Hundreds of our men died there . . . <sup>[82]</sup>

By the end of the march, less than a tenth of the Communists who had originally set out still lived. The torturous ascent and descent of the mountains may not have qualified as combat, but it was a wartime maneuver nonetheless, and it resulted in many deaths. No doubt the Himalayan Griffons and Lammergeiers haunting the rarified air of the 16,000-foot (7,260 m) Dauxe Mountains were pleased to receive, for once, the largesse of warfare that their lowland cousins enjoyed so regularly.

In light of such painful, undignified ways of dying, we might think of a non-lethal battle wound as fortunate, relatively speaking; but many war veterans maintain that they feared being severely wounded (i.e., too severely to walk) more than being killed. The reasoning is simple: a dead man cannot suffer anymore, but a wounded man might lie in the middle of an active battle for hours, even days, at the mercy of stray weapons fire, enemy soldiers, unfriendly civilians, hunger, thirst, and the elements; not to mention the pain of his injuries and the knowledge that he may be permanently maimed or crippled. Without evacuation, which was seldom forthcoming during a battle in the pre-helicopter age, a soldier too severely wounded to move had a better-than-even chance of dying from infection or exposure. His comrades were usually forbidden to leave the battle line to help him; as Theodore Roosevelt wrote in his memoir of the American campaign in Cuba, “No man was allowed to



drop out to help the wounded. It was hard to leave them there in the jungle, where they might not be found again until the vultures and the land-crabs came, but war is a grim game and there was no choice.<sup>[83]</sup>

As Roosevelt's statement suggests, the lot of the wounded became much worse when carnivorous animals entered the picture. It was and perhaps still is commonly believed that in the aftermath of especially deadly battles, the attending vultures would attempt to devour not only the dead, but the wounded and unconscious as well. If many soldiers dreaded the sight of vultures prior to a battle, that was nothing compared to, as William Tomkinson put it, "the horror of being wounded without the power to keep them off."<sup>[84]</sup> Samuel Chamberlain described how American soldiers who straggled behind in his army's long march through Mexico were captured and tortured by "Guerillas [who] contented themselves in hanging around our flanks and rear," and then were "left to die in the solitude of the Chapperal or to be eaten alive by vultures and Coyotes" (below).<sup>[85]</sup> Try imagining yourself lying hurt and unable to move (but fully conscious) in the middle of a desolate battlefield, knowing that you had no hope of any help until the battle ceased, whenever it ceased. Imagine seeing a bird's shadow, large enough to cover your entire body, winding around you in ever-tightening circles. Imagine seeing not one of those shadows, but many, and realizing they belonged to vultures. Imagine imagining that they were *coming for you*.



You may think the fantasy somewhat overwrought (if not ridiculous), but it was taken very seriously by some soldiers. Letting wounded men expire of hypothermia or gangrene may have been required by the code of soldierly conduct, but no self-respecting army would leave injured comrades to the razor-billed mercies of birds of prey. Writing about the Eurasian Griffon, Richard Meinertzhagen stated that one "Capt. Sanderson, a Crimean [War] veteran, told me in 1904 that hundreds collected on the field of Balaclava after the charge of the Light Brigade," in which 113 men and 475 horses were killed, with at least 130 more men injured, and so special squads were detailed to shoot the Griffons, "as wounded men were by no means safe from their attentions."<sup>[86]</sup> We can only speculate about what kind of citation would be awarded for *that* work. The danger of "their attentions" was surely somewhat exaggerated; when confronted with huge, powerful birds that routinely devour large animals, even if only dead ones, uncontrolled fear towards and preemptive shootings of said birds would quickly take precedence over calm realism, especially for soldiers unfamiliar with vultures and their true roles in nature. We must also keep in mind that to an injured man lying prostrate on a battlefield, a large vulture towering a yard or more above the ground and bounding about like a demented kangaroo would be a fearsome and intimidating sight (particularly if it was spattered with gore from a recent meal), whether or not it evinced any interest in him. A soldier who survived such an experience would naturally embellish and exaggerate it; one vulture would become

many, the vultures' wary shyness would become berserk aggression, and dead bodies would become living wretches frantically - but, of course, unsuccessfully - trying to fight off the cruel attacks of the great birds. Given the usual, commonly observed vulturine caution when approaching carrion, it's unlikely that a wounded man would have much to fear from them, at least as long as he remained conscious and respiring normally. Even an unconscious man who showed the slightest sign of life, as subtle as shallow breathing, would probably be avoided by the birds; particularly if other, genuinely deceased bodies were available.

On the other hand, it is conceivable (repeat: *conceivable*) that a sort of scavengers' feeding frenzy could take place. A surfeit of food can certainly change the birds' attitudes towards humans; Temple Godman, an adjutant with the British Heavy Brigade during the Crimean War, remarked that, "Ever since our fight at Balaklava, immense flights of eagles and vultures have been very common all about, and here they were so tame and gorged that we could ride right among them before they flapped out of our way."<sup>[87]</sup> During the Sepoy Rebellion of 1857 in India, the British volunteer John Tulloch Nash recalled that while chasing down rebels, the latter led the British forces to the town of Amorah, "on the same memorable battle-field, where they had already received so many fatal blows." When the British approached the old battlefield, they "beheld literally an army of vultures settled down on the blood-stained plains on which we had fought so often, and so fat and unwieldy had they become on the flesh of rebels, that not one among their countless numbers seemed disposed to quit the scene of their festivities, or move out of our way as we positively rode through them."<sup>[88]</sup> After feeding on the aftermaths of droughts and large-scale big game hunts as well as wars, vultures have become so nonchalant that a man could literally walk up to a grounded vulture and strike it before it even attempted to take flight. With such a preponderance of food available, and once the vultures realized that the creatures who ordinarily would be their most lethal enemies were not to be feared when attired in odd uniforms and marching to and fro, they could become emboldened to the point where they would attempt to devour anything that couldn't effectively fight back.<sup>[89]</sup> Witnesses to the First Battle of Tuyuty in 1866, the largest battle in South American history, maintained that during the night following the battle, "the cries of the injured mingled with the squawking of scavenging birds as they went about their feasting."<sup>[90]</sup> In his book *The Road to Oxiana*, Robert Byron recorded a third-hand anecdote of vultures behaving aggressively towards the wounded, told to him by a traveling companion named Stockley whose "Chief" was a veteran of the Second Boer War:

[H]is Chief . . . was shot in the legs during the Boer War and left for thirty-six hours before help came. Others had been shot likewise, for the Boers had fired low. Some were dead, and the vultures collected. So long as the wounded could move, however feebly, the birds kept off. When they could not, their eyes were pecked out while still alive. Stockley's Chief had described his feelings at the prospect of this fate, while the birds were hovering a few feet above him.<sup>[91]</sup>

None of this is meant to suggest that vultures were entirely unbeneficial to soldiers. Aside from the undoubted sanitary benefits of their services, their (usually) greater mobility and higher vantage points allowed them to see and react to things that were as yet mysterious to the soldiers below. Addison Terry recalled that the vultures often present at early battles of the Korean War tended to appear in numbers only during lulls in the fighting. Thus when he "could hear the clumsy 'thorp' of their flopping wings and see their big claws tucked underneath their ugly stomachs," he smiled to himself, because, "Their presence meant not only that everyone in our platoon was asleep, but also that the [North Korean Army] were taking their afternoon siesta, too."<sup>[92]</sup> Warriors in Africa sometimes found the attentiveness of vultures a great disadvantage when attempting to hide from the enemy, as

the birds would commonly gather over humans to investigate them – particularly if they had Horses with them. Native Africans were well aware of the birds' curiosity, and frequently used gatherings of vultures to track down their foes in the vast savannas.<sup>[93]</sup> More importantly, vultures were by far the most reliable locators of casualties. Samuel Chamberlain recalled how easy it was to spot stragglers from his army as it marched through Mexico; Mexican fighters quickly caught them, and then “we could tell to a moment where the poor fellows met their fate by the circles of Buzzards, Kites, and Vultures over the place where they were being murdered. . . . spill blood in a Mexican chapparel, [and] in five minuets there will be hundreds of the foul carrion birds, flying round in circles filling the air with their discordant cries.”<sup>[94]</sup> 19<sup>th</sup>-century armies in battles from Florida to India made a habit of using circling vultures to search for casualties; and the present-day Kurdish guerrillas fighting against the Turkish military still look for vultures in order to locate casualties, be they dead or alive.<sup>[95]</sup> Rescuers alerted by soaring vultures weren't always too late, as the birds often started circling long before the men below had expired; if help arrived quickly enough, the hungry birds could become unwitting accomplices to life-saving.

On the whole, this pageant of warfare looks very enticing for winged carrion eaters. Large animals killing each other in great numbers and most often not eating the bodies afterwards, poor chances of survival for the wounded, and with large land-bound scavengers usually too terrified to approach until long after the fighting ended; what more could a vulture ask? Perhaps a humble request not to be shot at; for an active battlefield was no free buffet for scavengers. It could be exceedingly dangerous, far more so than any flood or large carnivores' hunt. During wartime, vultures might be killed by accident, because they presented a perceived danger to the wounded (as after the Charge of the Light Brigade), or because soldiers simply didn't like the sight of them. A large number of Eurasian Griffons showed up at the Battle of Königgrätz of July 1866 - fittingly, as it was the decisive battle of Austro-Prussian War, resulting in more than 50,000 casualties - but at least two of these birds were killed during the fighting (whether by accident or intent is unknown).<sup>[96]</sup> In his memoir of the Sudanese Civil War, the former child soldier Emmanuel Jal recalled that during a retreat in 1992, “sometimes we ate the hyenas and vultures that followed our lines and were shot as they fought to snap up the bodies lying in the footsteps behind us” – though he noted that these scavengers ceased to trail them once they realized that it was dangerous to do so.<sup>[97]</sup> Although the American soldiers fighting in the Burmese theater of World War II had a more reliable supply of rations, they too occasionally shot and ate local vultures, supposedly because the troops believed that the bald-headed birds were turkeys.<sup>[98]</sup> (If so, then the first bite must have been quite a shock.)

Sometimes, only the incompetence of soldiers saved the vultures from dying on the field with their prospective meals. During the siege of the British fort at Agra, India in the Sepoy Rebellion, the fort's defenders were alarmed early one morning by what appeared to be enemy soldiers concealing themselves in a ravine, preparing to launch an assault on the fort. The defenders fired repeatedly into the ravine, and didn't stop for several minutes, but the “enemy” offered no response; not because they had been killed outright, but because they weren't there to begin with. The British had been shooting at a grazing Donkey and a gathering of vultures, which were busy devouring dead Sheep killed in earlier battles. The gunfire and general commotion disturbed neither Donkey nor vultures; since the defenders were all extremely drunk, none of their shots went anywhere near the intended targets. Despite this abysmal record of accuracy, the defenders haughtily defied a direct order from a general to cease firing, and many of them continued blazing away until the afternoon.<sup>[99]</sup> In all likelihood, both the Donkey and the vultures finished their meals undisturbed, albeit after having acquired an unhealthy disregard for gunfire.



Such comical incidents aside, there were times when the exigencies of battle were all that prevented soldiers from shooting the birds en masse; Temple Godman lamented that though he could easily have shot the Crimean vultures with his revolver as they gathered after battle, to do so would have alerted any nearby Russian sharpshooters to his presence.<sup>[100]</sup> There can be no doubt that guns have made battles more dangerous for vultures, since it's a perennially favored pastime for bored soldiers to take potshots at any large birds that happen by. The introduction of the military airplane in the early 20th century - shortly followed by its nemesis, the anti-aircraft gun - made matters even worse, since a distant vulture could be and sometimes was mistaken for a hostile aircraft. Richard Meinertzhagen recorded the fate that befell the victims of such misidentification in *Nicoll's Birds of Egypt*:

During the Great War, in Sinai the Egyptian Vulture, gliding at about 5000 feet [2,270 m], with the sun glistening on its white plumage, was more than once, mistaken for an enemy aeroplane and fired at, the mistake not being noticed until a bursting shell compelled the bird to flap its wings and disclose its neutrality.<sup>[101]</sup>

One wonders if such disclosed neutrality was always respected; airplanes were few and far between in the Sinai during World War I, and the temptation for anti-aircraft gunners to undertake target practice on any airborne object must have been strong. Vultures could also be misidentified on the ground; in poor viewing conditions, such as low light, smoke, or fog, a large vulture with its wings folded and neck extended can be mistaken for a human. Evidently, this was a recurring problem among the French cavalry during Napoleon's Peninsular War in Spain. A number of times, the cavalry charged at distant figures that they surmised to be Spanish soldiers, only to discover that the figures were actually the vultures hanging about the battlefield awaiting the results of their work.<sup>[102]</sup> A much more unlikely case of mistaken identity was recorded from the Battle of Khalkhin Gol between the Soviet Union and Japan, which took place in Mongolia in August 1939. Near dawn in the aftermath of a disastrous offensive, a Japanese officer recalled seeing "huge black things" on the ground near the heaps of bodies. Worried that the mystery shapes were the same Soviet tanks responsible for the slaughter of the previous day, he and his men quickly took cover - only to see the hulking silhouettes spread vast wings and fly off. They were vultures, probably Monk Vultures, that had stayed with the dead throughout the night.<sup>[103]</sup> It's difficult to say whether genuine Soviet tanks would have been any more frightening or demoralizing.

Even the very carcasses that enticed vultures to battles might prove deadly to the birds, since after the introduction of the gun as the standard (though not always preferred) weapon of infantry, the bodies of men killed in battle typically contained lead, in the form of bullets, balls, or shrapnel. As mentioned [in Chapter 8](#), lead is exceedingly dangerous to some vultures, because it's so chemically similar to calcium; and especially to those vultures, such as griffons, that feed primarily on carcasses of large animals. These are the same vultures that would be most likely to seek food on battlefields. I know of no records of large numbers of vultures being poisoned by wartime carrion, but it probably has happened, and such poisoning could easily cause local population crashes. It's highly likely that this has been an important factor in the modern decline of vulture numbers; for although there's little direct evidence for widespread lead poisoning of vultures, any birds that die of lead ingestion are unlikely to even be found, much less diagnosed, and the sad history of the California Condor during the past two centuries suggests that lead poisoning is a pervasive threat everywhere that firearms are commonly used.<sup>[104]</sup>

Once the battles were over, and the vultures had taken their share of the spoils, the birds of war departed, feeding themselves and their young on the remains of humanity's young men. Over the centuries, tactics changed, weapons evolved, and empires rose and fell; but the vultures ever hovered overhead, seemingly indifferent to the perpetual human struggle to make each war the last one. Attitudes towards the birds among the men who experienced war varied from respect to fear to outright hatred, depending on what was thought of as the "correct" way to dispose of the dead; and on whether death in battle was desired, or dreaded, or simply accepted with calm fatalism. Following the 1803 Siege of Agra in India, the British officer John Pester and several of his comrades inspected the perimeter of the fortress, and made the grim discovery that:

None of those who fell in that affair had been removed. Hundreds of dogs from the city were preying upon them, and swarms of vultures and eagles were also devouring them. This was a sight too unpleasant for any but perfect savages, and we soon turned from it in disgust. Any person who had witnessed such a scene would know how to estimate the *glories of war*.<sup>[105]</sup> [His italics]

Almost a century later, after the 1898 Battle of San Juan Hill in Cuba, the American officer and soon-to-be-President Theodore Roosevelt presided over the interment of seven of his Rough Riders who had been killed in combat. As the burial service was read and hymns were sung, Roosevelt wrote,

Vast numbers of vultures were wheeling round and round in great circles through the blue sky overhead. There could be no more honorable burial than that of these men in a common grave—Indian and cowboy, miner, packer, and college athlete—the man of unknown ancestry from the lonely Western plains, and the man who carried on his watch the crests of the Stuyvesants and the Fishes, one in the way they had met death, just as during life they had been one in their daring and their loyalty.<sup>[106]</sup>

Another veteran of San Juan Hill named Ewan, evidently also present at this burial, interpreted the scene somewhat differently. He told his friend Mary Austin, who duly recorded his statement in her book *Land of Little Rain*, that "when he came back from San Juan Hill . . . not all the carnage of battle turned his bowels as the sight of slant black wings rising flockwise before the burial squad."<sup>[107]</sup>

Ewan's bowel-turning would seem a reasonable reaction to the sight of vultures, those singular heralds of death, waiting for their chance to feed on the remains of enemies and compatriots alike. It wasn't merely the impact of seeing such notorious agents of mortality that led fighting men to dread the sight of vultures; many soldiers privately accepted that they would probably die in battle, and so were indifferent to such signs. But worry over what might happen to their earthly remains after death haunted many more. All human cultures have their own preferred methods of disposing of the dead; and in most, consumption by wild animals is not preferred, to put it mildly. Among the more demoralizing events suffered by Napoleon's Grand Army during its retreat from Moscow was its November 1812 revisit to the battlefield of Borodino, fought two months before. Seeing hastily dug graves containing what were once friends and comrades would have been bad enough, but the Emperor's men found not even that small comfort; the bodies of their fallen still lay out in the open, frozen and mangled by scavengers.

If they accepted the possibility of death at all, soldiers hoped for quick, clean deaths, the sort of demise that would not only be relatively painless, but would leave their loved ones with something to mourn over. Vultures and other scavengers left as little as possible when they finished off a soldier's body; and if they left *nothing*, the soldier's family would be left never knowing what had happened to him, only that he was one of the nameless unknown soldiers or MIAs. Proper funerals and burials, and all that those rituals entail, are also of great importance to soldiers. It's comforting to know that even

in the most barbaric times, they can treat a dead compatriot with the same dignity and respect as they would in peacetime. For most armies throughout history, the fate of their dead (as opposed to the dead of the enemy) was no trivial thing; even if bodies were merely buried in the field, the burial was conducted, as far as possible, with all of the proper solemnity and ceremony. The soldiers of the French Foreign Legion traditionally regard the 1863 Battle of Camarón in Mexico as their unit's finest hour; however, a French officer who visited the battlefield a couple of days afterwards was distressed to discover that many legionnaires had partially disappeared down vultures' gullets, and confided to his journal that "one could not recognize the poor unfortunates who after such brave conduct were left for two days to these ignoble birds."<sup>[108]</sup> The thought of their earthly remains being treated without the proper respect is disconcerting if not actually frightening to many people; and for those whose beliefs dictate ritualized funerals and very specific methods of corpse disposal, there is simply nothing worse than the idea of their earthly remains being torn apart and eaten by scavengers in some desolate field. The very real fear of dissolution that vultures could inspire was exemplified by a 19th century Muslim festival held near the city of Istanbul, witnessed by the Frenchman Clément Ader, in which women would go to a special place called Sidi M'Cid and lay out food for the local vultures, in the belief that such offerings would convince the feared birds to "spare their husbands and masters if they are killed in fights or raids."<sup>[109]</sup> Traditional Muslim belief holds that the body of a deceased person can still feel pain, and therefore can still be injured if treated incorrectly. The thought of a beloved man writhing in the afterlife as his earthly remains were shredded by vultures was quite horrible enough to these women to convince them that the birds should be beseeched, and even bribed, to seek out other kinds of carrion.

There has always been a wide range of opinion among professional fighters regarding vultures. Certainly many simply feared and/or despised vultures as reminders of the death that they so desperately wished to avoid. But to some, vultures were only one small part of the great adventure that was war. Reveling in warfare is considered a mark of barbarity in most modern societies, but even in the post-industrial age it's possible for aesthetics and adrenaline to triumph over prevailing standards of morality. Many soldiers have liked, or even loved war, to the extent that, in one English soldier's words, "everything that happened after was an anti-climax." The German World War I veteran Ernst Jünger thought of battle as an "opiate whose immediate effect is to stimulate the nerves."<sup>[110]</sup> At least a few of the soldiers lined up before the Battle of Salamanca in Spain must have looked to either side, seeing their comrades lined up beside them in all of their martial splendor; looked across the field, at the formidable enemy they would do battle with; looked up to the sky, seeing a great swirling mass of massive, dreadful birds; and thanked whatever higher powers they believed in for granting them the privilege to be there that day. Why should they dread what would follow, after witnessing such a spectacle? As the Persian national epic of the *Shahnameh* puts it, "A man cannot reach the heavens while he is alive; he is the prey of death, which pursues us all. One dies from a sword blow in the midst of battle; vultures and ravening lions devour his body, spears and swords slash his head. Another dies in his bed, but it is certain that we must all die."<sup>[111]</sup> Turkey Vultures were reputedly present at every single battle in the Cuban theater of the Spanish-American War, and they wasted no time in attending to the dead. In his war memoir *The Rough Riders*, Theodore Roosevelt recalled that following the (very minor) Battle of Las Guasimas, "We found all our dead and all the badly wounded. . . . One of our own men and most of the Spanish dead had been found by the vultures before we got to them; and their bodies were mangled, the eyes and wounds being torn." The American casualty found by the Vultures had been the comrade of a young man named Bucky O'Neill. As the Rough Riders stared at the mangled body, O'Neill turned to Roosevelt



and asked, “Colonel, isn't it [Walt] Whitman who says of the vultures that ‘they pluck the eyes of princes and tear the flesh of kings?’” Roosevelt was unable to place the quotation, probably because it was a conflation of modern poetry and Bible verses. But it was still oddly prophetic, he wrote, because, “Just a week afterward we were shielding [O’Neill’s] body from the birds of prey.”<sup>[112]</sup>

A poem composed by a German soldier serving on the Eastern Front during World War I, entitled “On the Advance March,” told of

The smell of burning and rubble and corpses.  
Pestilence is every pull of breath.  
And the jackdaws, hoarsely croaking,  
Reel in by heavy flight.  
And with wild greed a vulture  
Breaks out of the dark realm of clouds.  
Horror and terror lie  
Over the blood-soaked field.

Yet the poem concludes with the words,

Let it lie, let it be!  
Battle is battle and war is war!  
Cheerful and without respite, restless,  
Eastwards we carry victory.<sup>[113]</sup>

Some warriors have seen in war not just misery, but also the thrill of potential death, the frenzy of unleashed bloodlust, and the pageantry of earth and sky and man. What could peacetime offer in comparison? It is to those revelers that the birds of war were, and are, creatures worthy of respect; not just as fellow travelers in the great adventure of warfare, but as allies to soldiers and their deeds of arms.

It probably seems a bizarre suggestion that *vultures*, of all creatures, could ever be thought of as friends or allies by soldiers. After all, for most people caught up in war, their primary objective is to survive it; all else is secondary. How could an animal that feeds on the dead - that even seems to predict death by its very presence - be regarded with anything but fear and hatred in such a situation? But death, whether of others or of self, is not always unwanted and desperately avoided by soldiers, and vultures aren't always an unwelcome sight to them. We're all familiar with the peculiarly durable tradition of the heroic death in battle; it's an enduring theme in most every culture that has experienced war, and such sacrifices are often remembered long after the conditions that brought them about are forgotten. It isn't at all farfetched that some men (especially those raised in war-exalting cultures) would have desired, even actively sought out such deaths, and that these death-seekers would have respected vultures as personalized attendants of the warrior elite. Indeed, that is an exact description of the manner in which some warriors viewed vultures; around the turn of the 2nd-3rd century CE, the Greek historian Aelian wrote of a “western [European] people,” called the *Vaccaci*, who would

insult the corpses of such [men] as die from disease as having died a cowardly and effeminate death, and dispose of them by burning; whereas those who laid down their lives in war they regard as noble, heroic, and full of valour, and them they cast to the Vultures, believing this bird to be sacred.<sup>[114]</sup> [Translated by A. F. Scholfield]

The *Vaccaci* (later to be known as the Basques) were not alone in this. The people of many cultures around the world chose to gift the bodies of slain warriors to scavengers, regardless of whether or not they commonly practiced exposure as a funerary ritual. In interviews with warriors of the Huaorani tribe of Ecuador, the anthropologist Laura Rival found that the victims of intertribal warfare were habitually “left to rot, their bodies riddled with spears.” If the kinfolk of the deceased happened to find the bodies, then they would be buried in shallow graves; if not, it was expected that vultures would eat their flesh, and then the Giant Anteater (the local equivalent of a hyena) would consume the bones.<sup>[115]</sup> The Caddo tribe of North America let the bodies of those who were killed in battle lay out in the open to be devoured by scavengers; it was said that their condition in the netherworld would be better than that of people who died natural deaths.<sup>[116]</sup> The Cheyenne tribe ordinarily disliked the thought of scavengers eating their dead, and went to some lengths to prevent this from happening; but they habitually left warriors killed in battle lying on the prairie, as it was thought right and proper for the bodies of such men to be scattered far and wide by Turkey Vultures, Wolves, and Coyotes.<sup>[117]</sup> The ancient Romans maintained that the Celtiberians whom they fought in Spain in the 2<sup>nd</sup> century BCE ritually exposed their dead warriors for vultures, which would carry the souls of the honored slain to heaven on their wings.<sup>[118]</sup> Pueblo Amerindians would ordinarily bury their dead, and the Latooka of India would usually cremate theirs; but both of these cultures, inhabiting opposite sides of the globe, habitually left dead warriors for vultures. In these societies, it was important that victims of violence and bloodshed be granted different treatment from those who died natural deaths - and what treatment could be more appropriate for a warrior's earthly remains than to be wrapped in a funeral shroud of great dark wings and become sustenance for the omnipresent birds of war? Many of the men who dealt in death, and who lived under constant threat of it themselves, almost instinctively recognized vultures as creatures who were worthy companions to the end, and beyond.

The relationship between warrior and vulture isn't always quite so simple as that. Ancient rulers in the Near East often commemorated their military victories by commissioning art that showed vultures devouring their defeated enemies. To these rulers, the vultures were allies in the endeavor to dispose of and humiliate their foes. This sort of boasting wasn't restricted to post-battle celebrations; some warriors used the threat of consumption-by-scavenger to intimidate or dishearten their enemy prior to the fight. Homer's story of the Trojan War in *The Iliad* provides some of the best examples of this; though much of what the epic poem describes is fictional, it is believed that its descriptions of the behavior of ancient Greek warriors are very accurate. If so, Greek warriors made frequent use of the threat of being eaten by vultures. In Book XI of *The Iliad*, after spearing the Trojan warrior Socus, Odysseus taunts him with the disheartening words, “Poor wretch, not even in death shall your father and mother close your eyes, but the ravening vultures shall enshroud you with the flapping of their dark wings and devour you. Whereas even though I fall the Achaeans will give me due rites of burial.”<sup>[119]</sup> Late in the story, after mortally wounding the Trojan hero Hector, Achilles stands over him and gloats that while his friend Patroclus would be given all due funeral rites, “dogs and vultures shall work their will upon yourself.” In despair, Hector beseeches Achilles to at least send his body home, but the Greek hero merely replies, “your mother shall never lay you out and make lament over the son she bore, but dogs and vultures shall eat you utterly up.”<sup>[120]</sup> To the original audience of the *Iliad*, this was likely understood as an example of poetic justice; for Hector had earlier slain Achilles's best friend Patroclus, and taunted him in a similar manner: “As for you, vultures shall devour you here. Poor wretch, Achilles with all his bravery availed you nothing.”<sup>[121]</sup>

In ancient Greece, it was the duty of a soldier's family, particularly his wife and female relatives, to wash and prepare his body for burial if he returned home on his shield. Opponents liked to contrast this tender treatment with the fate of a body eaten by vultures, as in Diomedes's boast in the *Iliad*, "if I hit a man . . . he stains the earth with red blood and rots, and there are more birds about him than women." The scavengers' inclination to start a feast with the eyes and genitals only made the idea of becoming their next meal more nightmarish, and more appealing as a threat; for rather than being able to use those organs to appreciate and love his cherished wife when he returned home, a vulture would "love" (perhaps "rape" is a more appropriate term) the soldier's lifeless body far from home, starting with those organs.<sup>[122]</sup> In Book XI of the *Iliad*, Homer described how King Agamemnon and his allies slew the drivers of Trojan chariots, leaving "many a noble pair of steeds [driving] an empty chariot along the highways of war, for lack of drivers who were lying on the plain, more useful now to vultures than to their wives."

Greeks of Homer's era weren't the only warmakers to claim vultures as allies, though they used the theme with remarkable frequency.<sup>[123]</sup> The Greeks' frequent foes, the Persians, also invoked the birds of war, judging from the Persian national epic, the *Shahnameh*, which has the hero Zal praying for God's blessing on his father Sam by lionizing him as "the lord of the mace, the sword and helmet, who makes his grey horse curvet on the battlefield and leaves food there for the vultures, whose presence is a mighty wind in war."<sup>[124]</sup> The *Shahnameh* also records one hostile king sending to another a letter which reads, in part, "bow / Down like a slave; you are my subject now. / And if you don't, my men from sea to sea / Will celebrate another victory; / The dead White Demon's soul will haunt your plains / And feed the hungry vultures with your brains."<sup>[125]</sup> In India, home to the densest vulture populations until recently, it's almost a rote practice for the heroes of oral epics to threaten their foes with the carrion birds. The *Epic of Pabuji*, based upon the exploits of a real nobleman who lived in the 14<sup>th</sup> century CE, is rife with descriptions of its heroes "sating the hunger" of circling vultures with the organs of their enemies, or threatening to do so.<sup>[126]</sup> At one point in the story, the warrior Dhembo speaks directly to the vultures, promising to provide them with food – though the crafty birds quickly twist his words against him:

Then the greedy vultures retorted in glee  
"O Dhembo you are a great hero  
O Dhembo you are a hero in this land  
Give us vultures a meal of your flesh!"  
And Dhembo the warrior replied to the vultures  
"O vulture sisters, Dhembo will give you a meal of his flesh!"  
Then Dhembo took his fine dagger in hand  
And cut open his belly to draw out his entrails  
Half the entrails he fed to the vultures  
And he cast the other half on a Khejari tree [Translated by John D. Smith]

Dhembo died after the battle as a result of this self-disembowelment, although his memory lives on in the form of the red pods still borne by the Khejari tree; "Small red pods to mark your entrails," as the story delicately puts it.<sup>[127]</sup>



Neither the Persians nor the Greeks nor even the venerable Indians can claim to be first warlike people to use vultures as a means of humiliating and destroying their enemies. No one can, because the idea of vultures as allies in war apparently predates written history. As already mentioned, there was once an ancient and honored (though immodest) tradition among Near Eastern rulers to celebrate their military victories by commissioning artwork that depicted their vanquished enemies as meals for vultures. Even the relatively sparse archaeological material that has survived to the

present day shows that this tradition was practiced in Assyria, in Sumeria, in Egypt, and perhaps also in southern Europe. The earliest known artifact that indisputably depicts an association between vultures and human warfare is the Egyptian *Battlefield Palette* (above), thought to have been created around 3150 BCE. Dating to the predynastic era before Egypt was united, it depicts the Egyptian

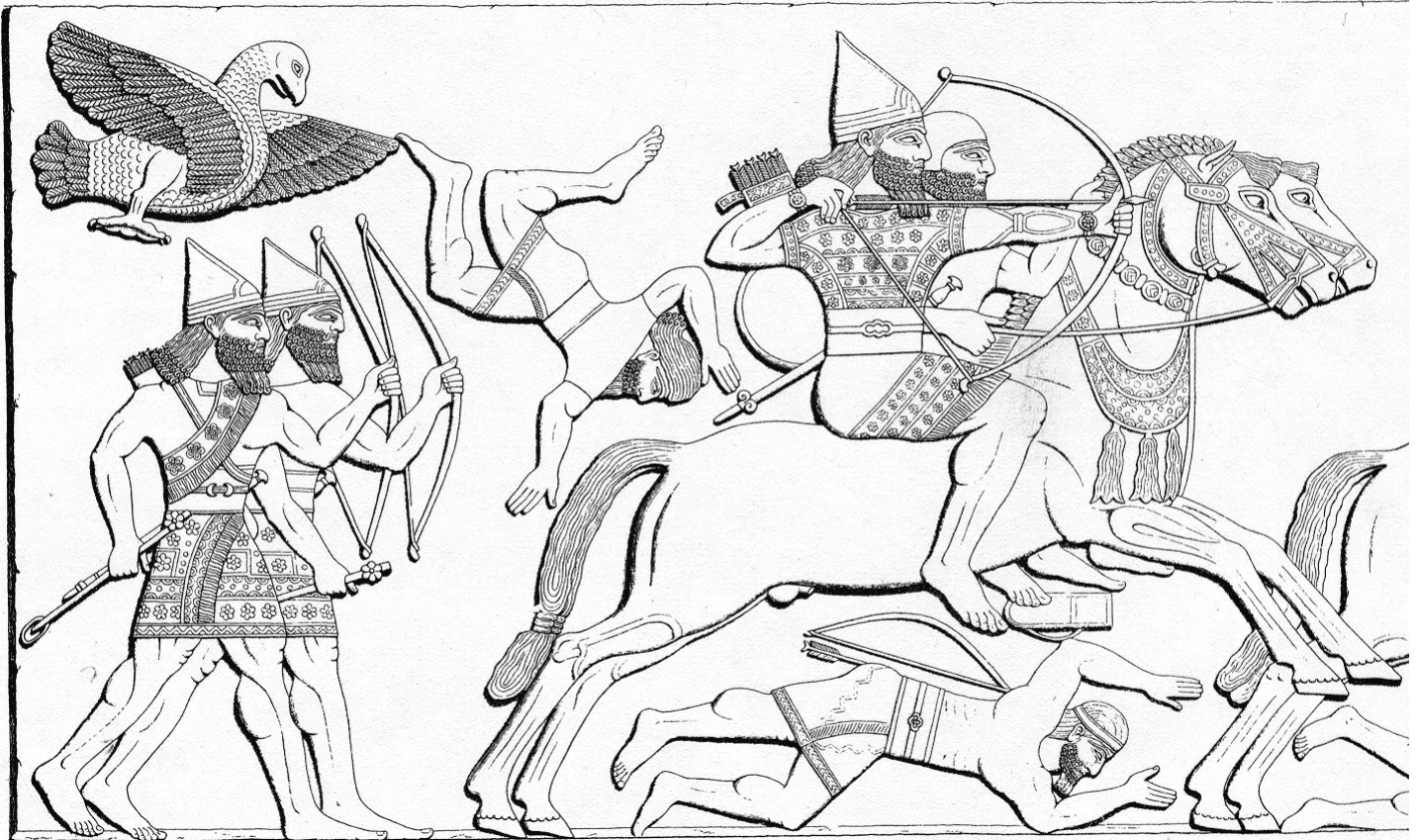
royalty vigorously smiting their enemies (who are, of course, depicted as much smaller figures than the Egyptians), with vultures and a Lion feeding upon the bodies of the Egyptians' slain foes. The palette has a fairly ritualized feel to it, which suggests that while the *Battlefield Palette* may be the oldest surviving such work of art, it was by no means the oldest one created.

The most famous work of this Near Eastern “vultures humiliating enemies” genre is undoubtedly the Sumerian *Stele of the Vultures* (left) found at Lagash, Iraq and currently residing in the Louvre. This carved stone was commissioned sometime in the 24th century BCE by the ruler of Lagash, Eannatum, to celebrate and commemorate his victory over the neighboring city of Umma. It does this in spectacular fashion, by depicting Eannatum and his phalanx of infantry tramping over the bodies of their enemies on one side, with an associated scene of vultures pecking at corpses and flying off with various body parts; and on the obverse side displaying Eannatum's captives



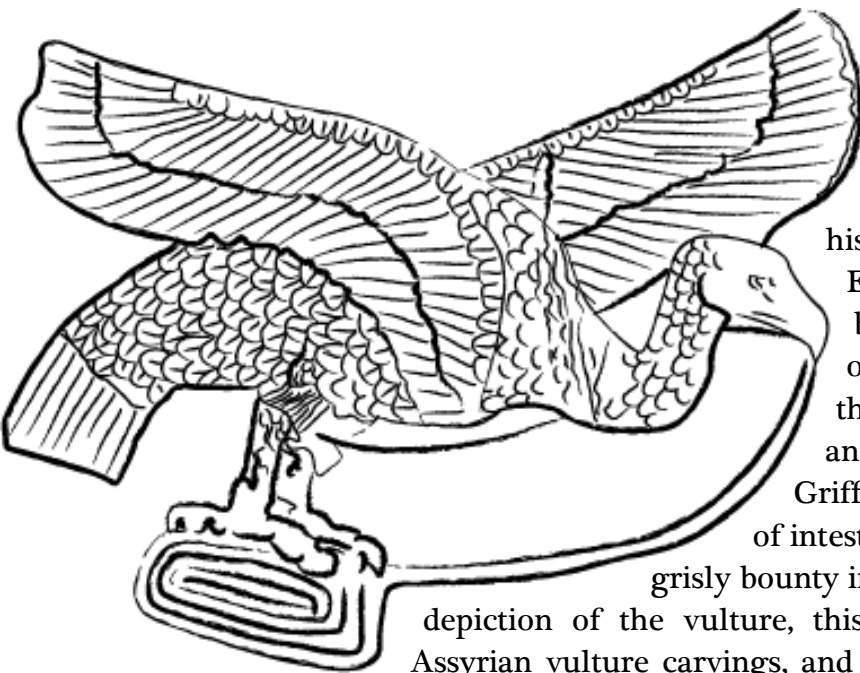


trapped in a net, lorded over by a god of Lagash.<sup>[128]</sup> The god holds a vulture in his hand, perhaps signifying that Eannatum thought of his gods (and, by proxy, himself) as “in control” of the scavengers he used to humiliate his enemies.



The kings of a later and even more notoriously warlike Near Eastern empire continued to celebrate their victories by depicting vultures devouring their handiwork. Ashurnasirpal II, who ruled Assyria from 883 to 859 BCE, commissioned a series of spectacular relief carvings on his palace at Kalakh in order to commemorate his reign. These carvings ([above and below](#)) include a number of vultures shown flying above the battles and feeding on the fallen enemies of the Assyrians. The carvings are notable in that they seem to focus not upon the victorious aftermaths of the Assyrians' battles, but upon the battles themselves; a preference that helps to illustrate why the Assyrians were universally feared in their heyday. The vultures are so well detailed that they are easily identifiable as griffons, and they're shown in highly realistic poses, including one bird that appears to be effecting an entryway into a corpse via its rectum.





This tradition was apparently alive and well a century later, when (after a period of relative Assyrian weakness) Tiglath-Pileser III assumed the Assyrian throne and conquered most of the Near East, establishing what historians have dubbed the Second Assyrian Empire. The Emperor's central palace includes a bas-relief of spear-wielding horsemen charging over their enemies, leaving decapitated bodies in their wake – and hovering over the horsemen is an astoundingly well-carved and detailed Eurasian Griffin (left), clutching what appears to be a bundle of intestine in its talons while swallowing one end of its grisly bounty in flight. Aside from the noticeably more lifelike

depiction of the vulture, this relief is virtually identical with the earlier Assyrian vulture carvings, and no doubt was intended by Tiglath-Pileser as a sort of revival of the triumphalist spirit of his forebears.

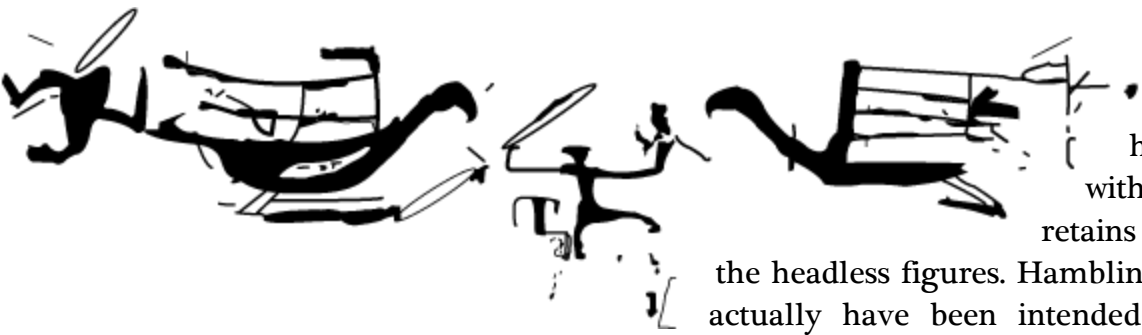
Artistic depictions of humiliation-by-vulture are rarer in Europe, but the archaeological record still holds a few. The Etruscan people, who inhabited the Italian peninsula prior to its wholesale absorption into the Roman Republic, commonly painted vultures and battlefield scenes on their vases – and sometimes combined the two. An illustrated Etruscan vase from the 4<sup>th</sup> century BCE ([detail, below](#)) is thought to depict a battlefield victory over the barbarian Gauls – one of whom lays on the ground, trampled by horses and men, while a silhouetted Griffon perches on his upper torso, inspecting his exposed entrails.<sup>[129]</sup>



Another archaeological discovery may or may not have any direct relevance to this tradition, but it's worth mentioning because if it does, it would be the oldest by far. This is the ancient Turkish town of Çatal Höyük, which we encountered [in Chapter 3](#). It's generally believed that the town's paintings, which often depict vultures feeding on humans, represented the Çatalians' peaceful traditions of exposing their own dead to vultures. In his recent book *Warfare In the Ancient Near East to 1600 BC: Holy Warriors at the Dawn of History*, William James Hamblin offered a rather more sinister interpretation: the paintings, though they don't depict any overtly military themes (at least that modern people would recognize), may actually have been ancient military propaganda.



Two of the Çatalian paintings show what are almost certainly hunting scenes, which depict figures with bows and slings attacking wild animals. Between them is a more enigmatic painting without any vultures, which is usually interpreted as a depiction of a hunting dance. Hamblin suggested that it may in fact "represent a war dance or victory celebration, or even a battle." This



painting shows twelve figures, three of whom are headless. One of the headless figures is armed with a bow, and one figure that retains its head is bound to two of the headless figures. Hamblin argued that the scene may actually have been intended to depict "an after-battle victory celebration in which bound prisoners are brought forward and decapitated." The practice of decapitating bound prisoners after a battle is a very ancient one, though it is by no means certain that the Çatalians practiced it.

Most interestingly for our purposes, Hamblin suggested that the vulture paintings of Çatal Höyük "may depict the decapitated bodies of enemies killed in battle and left to be devoured by vultures." The painting in Shrine VIII.8 (above), which shows a sling- and club-wielding figure between two vultures, could support this theory, though only if it's interpreted as a person attempting to chase away the vultures. As Hamblin pointed out, a figure attempting to drive off the vultures "runs counter to [the] overall interpretation of people intentionally exposing the dead to be eaten by vultures; why chase the vultures away if you intentionally expose the corpses?" Finally, an only partially discernible Çatalian painting shows a figure carrying what appears to be a human head, which could be a war trophy. Hamblin concluded by pointing out that if this interpretation of the paintings' meaning was correct, "the 8000-year-old murals . . . would be the oldest military victory memorial in the world."<sup>[130]</sup> Few if any of the other archaeologists who've studied Çatal Höyük would agree with Hamblin's theories; but then, the artwork of the town is so open to interpretation, and has inspired so many competing theories about its intended meaning, that it serves as a sort of archaeological Rorschach test. Nevertheless, it remains entirely possible that the Çatalians claimed vultures as allies in war, and that the tradition of doing so was so very ancient that it was already millennia old when the ancient Egyptians and Sumerians began expressing it. It's for good reason that the Arabic word *nasr*, "vulture," can also be interpreted to mean "victory"; for many warriors throughout history, the two have been effectively synonymous.

Utilizing vultures in this manner may seem barbaric to modern audiences, but it's only fair to point out that the custom has survived well into the industrial era – and it may yet persist during the more vicious armed struggles. During the bitter War of the Pacific (1879-83) between Chile and the alliance of Bolivia and Peru, the victorious Chileans often left the bodies of their opponents on the battlefields of the pampas to be devoured by scavenging birds – possibly including Andean Condors.<sup>[131]</sup> If third-party observers of the late-19<sup>th</sup> century insurrection in Cuba can be believed, the Cuban guerrillas who fought a long, brutal war against the colonial Spanish were quite willing to deal one last insult to their deceased foes by abandoning them to the island's Turkey Vultures. After the US entered the conflict on the Cuban side in 1898, thus starting the Spanish-American War, an American soldier who witnessed battles between the Cubans and Spaniards flatly stated that, "The Cubans will not bury the Spanish dead. They leave them for the vultures."<sup>[132]</sup> The American journalist John Hemment wrote that following the Battle of Santiago Harbor between the Spanish and

American Navies, which resulted in the sinking or grounding of the entire Spanish fleet, many Spanish sailors attempted to flee from their grounded cruisers to the city of Santiago. However:

A party of Cubans who were doing scout duty in and about this point saw some Spanish sailors escaping, and as they approached the shore the Cubans shot them in the water, and the water was stained with the blood of these fleeing wretches. Many of their bodies were washed ashore by the surf, and they were taken charge of by the Cubans and spread out as a feast for vultures and buzzards.<sup>[133]</sup>

While many disparate cultures around the world deemed vultures a suitable final resting place for the “friendly” dead, use of the birds to humiliate and destroy dead *enemies* has proved to be the more durable practice. It’s just another manifestation of humanity’s universal “us vs. them” mentality, with the “us” being victorious and alive and the “them” being defeated, dead, and devoured. Thus even completely neutral battlefield scavengers were portrayed as partial to whoever provided them with the most carrion. The importance of confining the ignominy of death to the enemy quickly becomes clear when studying military history; during battles with other Mesoamerican tribes, the Aztecs quickly spirited away the bodies of any of their warriors who fell, in order to prevent the enemy from seeing how many casualties they had suffered.<sup>[134]</sup> After his extremely costly victory over the Spartans at Thermopylae in 380 BCE, the Persian emperor Xerxes attempted to hide his losses by dumping the corpses of his slain soldiers into mass graves.<sup>[135]</sup> Even today, wars are often treated as though they are mere contests of competing body counts, despite a history full of conflicts in which the ultimate victors lost more men than those they defeated. If death was equated with defeat, then warriors who taunted the enemy with the threat of becoming vulture chow used vultures, metaphorically, as living weapons to torment soon-to-be dead foes; the innocent birds’ true role as impartial scavengers of the waste of war was subverted into something far more sinister.

No small cause of the like or dislike of natural scavengers that each individual soldier harbored was the soldier’s view of nature itself. The wild was comfortingly familiar to hunting-gathering peoples, less so to agrarian farmers and herders, and worryingly mysterious to city-dwellers. One problem that the armies of industrialized nations have struggled to solve over and over again is that of surviving out of doors and bereft of all the amenities of civilization; a recurring cause of death among modern soldiers is an inability to deal with extremes of heat or cold, or to live off the land. It’s a jarring and sometimes bewildering experience for people who have never slept under the stars or personally killed and butchered an animal to suddenly come face-to-face with the natural cycle of life and death. War forces those who take part in it to confront death, so often kept locked behind hospital doors in the modern world; which explains why many soldiers have mentioned the “education” of seeing comrades expire before their eyes as their most memorable wartime experiences.

The battlefield itself has frequently been described using nature as a metaphor, not least in the soldiers’ trait of using the names and images of predatory animals as symbols of ferocity and courage. Soldiers like to think of themselves as colleagues of these predators, and of their battles as hunts for human prey. One need not look far to find soldiers using hunters’ phrases like “release the dogs,” or keeping “head counts” of slain enemies. The different phases of warfare can easily correspond to the stages of the hunt: the search for the enemy is like tracking down prey; the battle itself replaces the fight to slay the prey, and the victors’ homecoming parade is but one step removed from the hunters’ triumphant return, with prisoners and booty serving as substitutes for spitted meat. And the non-warriors who often came to strip the dead of weapons and valuables were scavengers, who profited from the killing of others. Even some warriors were lumped into this last category, particularly

mobile nomads such as Bedouins and Cossacks who avoided stand-up fights with stronger opponents, but who constantly trailed armies on the march, ready to attack any unfortunates who fell behind. Sergeant David Robertson, who served in the British expedition to Egypt in 1801, described how French soldiers who were wounded were “overtaken by some Turks who had been hovering about the retreating army like so many Vultures.”<sup>[136]</sup> This opportunism (or rather, the perception of this opportunism as cruel and cowardly) was viewed as similar to genuine scavenging because vultures were thought to feed upon men who were killed by the labor and heroism of others, or on wounded soldiers who were too weak to defend themselves.

Though it might seem unlikely considering the number of animals that warfare has killed throughout history, soldiers as a group are notorious for their fondness of animals; and not only cavalymen for their Horses or supply troops for their Mules. Due partly to a simple, fundamental desire for companionship and partly to the apparent “innocence” of animals, they can provoke wartime compassion and affection that is nothing short of astonishing, considering where and when it occurred. From ancient times to the present, many combat units have kept beastly mascots; Dogs are the most popular, but storks, Lions, boars, and eagles have all served as living military emblems at one time or another. The Roman historian Alexander the Myndian claimed that the army of the general Gaius Marius was ordinarily accompanied by two vultures, “which were known by their brazen collars (the soldiers having caught them and put these about their necks, and so let them go, from which time they in a manner knew and saluted the soldiers), and whenever these appeared in their marches, they used to rejoice at it, and thought themselves sure of some success.” A US Army unit stationed at Panmunjom on the border between North and South Korea reportedly kept a Monk Vulture until 1968,<sup>[137]</sup> which must have contributed to awkward public relations. Even wild or feral animals unfortunate enough to live near a battlefield might be befriended, or at least kept out of danger. There’s a story that on July 1, 1916, the first day of the Battle of the Somme and the single bloodiest day in British military history, some British soldiers who would shortly perish in the battle took the time and trouble to carry live partridges out of the line of fire. Musing about this odd live-preserving sentiment, the World War II veteran J. Glenn Gray wrote that “soldiers are moved by the impersonal compassion that the fragility and helplessness of mortal creatures call up in most of us.” That fragility was emphasized all too often, much to the lament of those who felt that war’s depredations should be restricted to the men who at least fought in it consciously, if not always willingly. The soldier and poet Captain Robert Graves remembered being “shocked by the dead horses and mules” littering the battlefield of the Somme; he thought that “human corpses were all very well, but it seemed wrong for animals to be dragged into the war like this.”<sup>[138]</sup> A soldier of the American Civil War wrote after a fierce battle that he would “never forget the screams of the poor Whippoorwills. . . . Amidst the lightning flash and roar of our artillery and musketry, and the storm of lead and iron, the screams of the poor bird could be heard mingled in distress with the groans of the dying and wounded.”<sup>[139]</sup>

Be they poor or proud, birds occupied a unique niche in this military menagerie. Except for Pigeons, which have been employed as messengers since time immemorial, and the small birds sometimes used to deliver incendiary devices in ancient China, birds have rarely been impressed into warfare in any significant capacity.<sup>[140]</sup> Instead, birds offered solace to soldiers by their very presence. Not a few men stationed in active warzones have taken breathers from their duties in order to record their reminiscences about the local bird life in their journals; and many prominent soldiers, such as Colonel Richard Meinertzhagen, have had second careers as ornithologists, where their acquired skills of keen observation, attentiveness to surroundings, and sitting motionless for long periods would



prove very useful. Such fragile, ethereal creatures as birds were welcome changes from the chaotic filth of the battlefield; a colorful songbird was as incongruous in such a place as a scantily clad young woman, and almost as welcome. Birds never failed to bring back fond memories of more peaceful times at home, as voiced in the lyrics of the "Home, Sweet Home" song popular with both Union and Confederate troops during the American Civil War: "The birds sing gaily, that come at my call / Give me them, with that peace of mind, dearer than all." Lady Alicia Blackwood recalled one instance of such a memory bringing happiness to wounded British soldiers convalescing behind the lines during the Crimean War, when a reverend's lecture

ended with a remarkable graceful allusion to a certain sweet songster, 'whose notes were not confined to England's woods and forests, but were the solace of the sick chamber, the soother of the sorrowful, the harbinger of ease to the wounded, and the notes of a friend to the soldier. I need not name that bird' . . . whereupon the building seemed ready to fall from the burst of applause and cheering, as every voice vociferated 'The Nightingale, the Nightingale'.<sup>[141]</sup>

Vultures, as always, ran against the avian grain; instead of offering solace to soldiers and soothing the sorrowful, they offered an unambiguous reminder of ultimate doom. Another Englishwoman, R. M. Coopland, wrote in her memoir of India's Sepoy Rebellion:

I quite agree with the words of the song, "our birds have a plumage like coloured gems;" with the exception of the vulture. I often saw this monster waddling about, gorged with food, and felt a strong inclination to shoot it. What horrid feasts they have lately been making on the bodies of our unburied dead, left exposed to their mercy, in many a forsaken station!<sup>[142]</sup>

Even more eerily, these "monsters" did not ignore the fighting; unlike most birds, they didn't flee battles, nor did they flit gaily above as though such incomprehensible events didn't concern them. Vultures went to great trouble to seek out battles, clearly understanding what the end result of all the sound and fury would be - but not caring what either side was fighting for, or why. From a human perspective, the paramount question of warfare is who wins and who loses, but the answer makes no difference at all to the vultures; to them, a dead soldier is a carcass, and his nationality, bravery (or lack of it), and allegiance make his body no more or less appetizing. For an animal - and especially a bird, of all creatures - to actively seek out a battlefield of its own volition is chilling; it speaks of nightmarish foreboding, of a hidden consciousness that has seen us at our very worst and has not shied from the sight, and of creatures that know things about humanity and its darker side that we would have preferred to keep hidden.

Vultures maintained a strong presence at battles into the late 19th century; but with the outbreak of World War I in 1914, something in the association with warfare that the birds had maintained for so long went curiously awry. The trenches of the war's Western Front occupied the very same territory that had been cluttered with dead men and horses 44 years earlier, in the Franco-Prussian War; but this time, there were no vultures cleaning the mess up. Although many observers at the beginning of the war had confidently stated that the battle lines in France and Belgium would soon be rife with vultures,<sup>[143]</sup> and vultures were pervasively present as symbols and metaphors in the poetry of the war, I have not seen a single eyewitness account from any soldier who served with the Allies or the Central Powers on the Western Front that mentions *any* vultures spotted over that enormous battlefield. It seems that the supreme scavengers were entirely absent from one of the most massive slaughters that mankind had ever inflicted on itself;<sup>[144]</sup> a fascinating, though little-noted, difference between the most prominent theater of this war and the countless other wars that had

preceded it. There undoubtedly were fewer vultures in Western Europe at the time than there had been at any other point in human history, but they were still not so few that their seats at the great banquet should have been entirely unfilled . . . unless something significant had changed about the nature of warfare.

Something had. Most obviously, with this conflict war had finally become industrialized, after decades of threatening to do so; and, as it did, it also became indiscriminate. The most important weapons in World War I in terms of the numbers of soldiers killed by them were artillery, machine guns, and rifles, in that order. Artillery, the greatest killer, was the pinnacle of both technological prowess and destructive potential. Until the last year of the war, practically every major offensive on the Western Front was preceded by a massive, sustained artillery barrage, sometimes lasting as long as a week, during which many thousands of shells would be fired into the enemy lines. There really was nothing in prior military history that even approached the intensity of this shelling; a French soldiers' journal described it as "a form of torture that the soldier can't see the end of," and Ernst Jünger likened it to being "tied to a post and threatened by a fellow swinging a sledgehammer. . . . the nerves are exposed without protection and without pause to the sense of absolute menace."<sup>[145]</sup> As a result of this technological advancement, battles saw a staggering increase in the sheer destructive power with which they were fought; a fury that was unleashed not only against soldiers, and against their weapons and machinery, but also indiscriminately against their surroundings.

Prior to World War I, warfare didn't normally inflict substantial damage on the environment where it took place, unless such damage was deliberately planned and carried out. Crops might be destroyed and forests burned to deprive the enemy of food and shelter; but such destruction would soon be repaired by the regenerative powers of nature. The effects of war on the land were only temporary, and would soon disappear (one reason why the locations of many ancient battles are unknown). The repeated, massed artillery barrages common on the Western Front were another story; for four and a half long years, they reduced thousands of square miles of France and Belgium to a blasted, crater-pocked wasteland. Even today, the farmland where the battles of the Somme, Verdun, and Ypres took place is quite visibly scarred by the long-ago fighting; even today, local people and animals are occasionally wounded or killed by explosives that have been laying dormant, but armed and dangerous, for nearly a century. John Keegan noted in his book *The Face of Battle* that World War I marked the first time that "soldiers possessed the means to maintain a lethal environment over wide areas for sustained periods," and that veterans writing after the war took pains to convey to their readers that their surroundings had been hostile to life to a degree unthinkable prior to the war, and almost unimaginable to anyone who didn't experience it.<sup>[146]</sup> It may seem absurd to say it, since the Western Front was so inimical to all normal human activity, but like any great city it was a very human construct: a predominantly artificial environment which required a tremendous amount of manpower and raw material to create. The Western Front can easily be thought of as a colossal city, only a few miles wide but stretching from Switzerland to the Belgian coast, the entire economy of which was geared to the exclusive industry of death and destruction.

Out of all of the different environments that have played host to battles, urban areas are probably the most hostile for vultures; but more than a few urban battles have still fed the birds. Vultures were present when Brazilian troops occupied Paraguay's capital of Asunción in 1869,<sup>[147]</sup> and when Cuba's capital of Santiago was occupied by Americans during the Spanish-American War of 1898, journalists riding with the cavalymen described seeing many dead bodies in the streets, torn by Turkey Vultures.<sup>[148]</sup> During the Japanese attack on Rangoon, Burma in 1942, many of the city's citizens were killed; some were strafed or bombed by Japanese aerial attacks, and some were shot at

looters by the colonial police. Witnesses to Rangoon's final hours before its capture described vultures gorging on the dead throughout the city, many so stuffed that they could barely fly.<sup>[149]</sup> However, any vultures attempting to feed at the Western Front (right) had two strikes against them right from the start; not only was the Western Front the most heavily armed and lethal "city" in world history, but it was also a city in an area where vultures had already been incessantly persecuted for centuries. Had the primary front of World War I occupied land in Africa, or India, or indeed almost anywhere but Europe, the long-established mutualistic relationship between humans and vultures would have aided the birds in overcoming the inherent hostility of such a harsh environment. In Europe, where the prevailing attitude towards vultures was itself inherently hostile, there was no such aid to be had. Though there seems to be no written evidence for it, it's quite likely that some of Europe's vultures did fly to partake of the Western Front's first battles, before the stalemate and entrenchment had begun. But once the trenches had been dug, the barbed wire unrolled, and the machine guns positioned to saturate every centimeter of ground between the trenches, there was little that the birds could accomplish there, in the hell that one reconnaissance pilot dubbed "that sinister brown belt, a strip of murdered nature."<sup>[150]</sup> If vultures even ventured near the area, it was probably only to traverse it in the same manner as they would traverse a hostile city: at a great altitude, in search of less forbidding pastures. The soldiers who lived and died on the Western Front for four and a half years thus had to make do with less substantial battle scavengers: occasionally smaller birds like crows, but more often the likes of maggots and worms.



And Rats. When perusing the literature of the war, especially that which was written by soldiers at the front, it's difficult not to notice the persistent theme of the front's resident rodents. Credit the Brown Rats for venturing where few other creatures dared to tread; but from the soldiers' point of view, they caused far more problems than they solved. As scavengers, they were quite inefficient, requiring a long time and huge numbers to devour a corpse; they also spread disease and parasites,<sup>[151]</sup> just as they had since humans first became settled farmers. Perhaps more importantly, the scavenging Rats added a dimension of grotesquery to the war that gave hardened veterans nightmares. One anonymous British survivor of the Battle of Passchendaele in 1917 (arguably the most squalid battle of the war) wrote, "You've never seen rats 'til you've seen rats that were born, and fed, and grew in human flesh." Born, fed, and grown among desperate, miserable men, the rodents became completely unafraid of humans, and ultimately were accused of far more attacks on the living than even the vultures of the Crimea ever were.

The complete absence of the soldiers' old bald-headed friends was made sadly ironic by the fact that large scavengers were badly needed on the Western Front. Modern estimates suggest that by mid-war, the soldiers shared their trenches with about a million more-or-less intact, unburied corpses at any one time.<sup>[152]</sup> When German soldiers looked upon the aftermath of the 1915 Battle of Loos and called it *das Leichenfeld* - "the corpse field" - it was not hyperbole. Dead men often could not be buried, as enemy burial parties were shot at unless a truce was specifically arranged to allow for them. Even if the dead were buried, their shallow graves were often quickly exhumed by rain or shellfire.<sup>[153]</sup>

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By 1917, the situation was so bad that British Army doctors were urging soldiers at the front to spray newly dead corpses with disinfectant,<sup>[154]</sup> a well-meaning if ineffective solution to the squalor. The conundrum of the dead was a problem that all combatants struggled with, and it was never solved, at least not while the artillery shells and bullets still flew. It certainly is debatable whether or not vultures would have had a positive effect upon the minds of the men in this morass, but the birds unquestionably would have made the Western Front a cleaner, less dangerous place for those who had to fight there.

But it's also a moot point, since the war birds never appeared. One could say that this situation was not unanticipated, as some ancient chroniclers of great battles described struggles so fierce or armies so terrifying that the vultures actually feared to approach them; the Persian epic of the *Shanameh*, for example, includes a description of an army of thirty thousand men, "cavalry and infantry, swordsmen and lance bearers, and their drums thundered with such a noise that the vultures of the air cowered away in fear."<sup>[155]</sup> It would be some centuries before an army actually could thunder such a noise. For three days in July of 1863, Union and Confederate soldiers fought the Western Hemisphere's largest and most lethal battle ever, in the fields of Gettysburg, Pennsylvania. After the battle, and despite the tens of thousands of dead and wounded men strewn throughout those fields, scavenging birds of all kinds were conspicuously absent. Even the Turkey Vultures found in attendance at many of the war's other battles were gone; even the common Crows had apparently been frightened off by the three days of thunder and fury. The bodies of thousands of men and Horses decayed in the summer sun, and the only wings that "bore them off," as it were, were those of masses of flies.<sup>[156]</sup> As pivotal as Gettysburg was, it was but one battle in a much wider-ranging war; no one could conceive of an entire war front, encompassing hundreds of miles, that from end to end was so horrible and lethal that even *vultures* feared to haunt its battlefields. No one, that is, until 1914, when a hitherto invisible threshold of horror and lethality was attained, then blasted through with all the fury that the industrial age could muster. Befitting its contemporary title, the Great War had finally advanced the art and science of human warfare to its logical conclusion; this time, even the war birds were frightened away, leaving the warriors alone in the desolation that they had created.

The vultures' long and fruitful association with warfare did not end abruptly with World War I, by any means; if only because the presence of battlefield vultures was well-documented in a number of subsequent wars, including several theaters of World War II.<sup>[157]</sup> Still, World War I marked a definite tipping point: Ever since then, this strange and terrible relationship, as ancient as any association between bird and human, has been on the wane. The most obvious reason for this is that there are far fewer vultures now, and that most of those which survive are restricted to regions where war (along with all of the other amenities of civilization) is rare or unknown. As warfare has become mechanized, the military need for the muscular power of domestic animals has drastically decreased; vultures attending battles no longer have the choice of feeding on dead cavalry horses instead of dead cavalymen, because today's cavalymen ride steeds of steel. Technological advances have also ensured that while today's battles are not necessarily more lethal than those of the past, they are inevitably much more destructive. Today, even street gangs can afford to equip themselves with automatic weapons, and they are the norm among all but the most destitute armies. A unit equipped entirely with automatics doesn't need to aim for specific targets; with weapons that fire hundreds of bullets per minute, there is little need for pinpoint accuracy. Instead, soldiers are trained to create "kill zones," areas of space which are saturated with bullets with the intent that anything inside said zones will be shot, repeatedly. It isn't evident how anything as large and conspicuous as a vulture could manage to survive, let alone subsist, in a battlefield crisscrossed with kill zones. Furthermore, in

modern battles human bodies are often completely destroyed by increasingly destructive weaponry. Napalm, fuel-air explosives, and cluster bombs obliterate flesh and bone in acts of annihilation that are decidedly uncharitable to scavengers.

Paradoxically, wartime care for both the wounded and the dead has simultaneously advanced greatly. In well-equipped modern armies, helicopter-borne medics are more likely to be the first visitors to a dead or wounded soldier than are vultures, and the value placed upon individual soldiers is such that it's well worth taking great risks to recover each and every one of them. The political and military leaders of democracies, at least, take the duty of protecting their dead very seriously; and when they fail, as in 1993, when the bodies of several American servicemen killed in Somalia were paraded and mutilated on worldwide television, there is hell to pay. Despite the continued involvement of the US military in conflicts around the globe, it is very unlikely that any American soldier's body has fallen prey to vultures since the waning years of the Vietnam War (if then); but in Africa, where numerous lethal but relatively low-tech conflicts combine with large populations of vultures, many of those who live and die by the gun must still be devoured by the birds. Nowadays, the presence of vultures at battle is less a signal of unusual lethality than a testament to the destitution of some, or all, of the combatants. Just as many of the vultures' other traditional roles in the human drama have come to be seen as anachronisms, as signs of backwardness and poverty, so too has their role as war birds been marginalized in the modern world; and if current technological trends continue, it may soon cease entirely.

Although it presently exists only in the realm of science fiction, a completely automated battlefield in which humans take no physical part in combat is now a real possibility. Unmanned robots have become increasingly common on the battlefields of the last couple decades, and more and more often they are entrusted not just with the non-lethal tasks of reconnaissance or mine-clearing, but with tracking down and killing enemy personnel. It takes little imagination to depict a war between two technologically advanced belligerents in which there would be no exposed enemy personnel to kill, leaving the machines to take out their aggression on each other. Warfare certainly would have come a long way for it to have progressed from Cro-Magnons bashing each other's heads in with rocks to autonomous drones frying each other's circuitry with electromagnetic pulses. I must allow my readers to decide for themselves whether such Silicon Age warfare would represent a triumph of intellect or a failure of spirit, or something more profound. It definitely would mark the end of one of the strangest, most terrible, and most marvelous relationships between human and animal that has ever existed.

We now know why vultures sought out battles: for no reason more complex than a desire for food. We know how they found battles, and we know how they incorporated the most glorified and most vilified human activity into their age-old file of searching images. We even have a rough idea of how the great birds were viewed by the men who, willingly or not, offered their bodies to satisfy vulturine hunger. But there is one burning question that remains unanswered: What do the *vultures* think of all this? Once their bills are bloodied and their crops are full, something must cross their minds as they fly from the cacophonous fields of fire back to their peaceful nests and quiet roosts. How strangely must they feel about those unfathomable, unconquerable naked apes, who have done such damage to their natural prey, now offering their own bodies as a substitute?

Any answer on my part will only seem crass or silly, or both. But at least one writer has offered a plausible suggestion: Samuel Johnson, an 18th-century English writer. In his 22nd *Idler* essay, published in 1758, Johnson related how a "shepherd of Bohemia" learned, through long experience, to understand the voices of birds, and told of what that shepherd had managed to learn about the

vultures' view of war. One day as the shepherd was traveling in the high mountains, he came upon "an old vulture was sitting on a naked prominence, with her young about her, whom she was instructing in the arts of a vultures life." He managed to secret himself away at a spot within earshot, but where the birds never suspected his presence; and so was able to eavesdrop on their musings.

The vulture began by telling her children that they need learn little more from her; for the most part, they already knew what they needed to know to make their way in the world. But she had yet to tell them about the ways of obtaining the most delicious food of all: the flesh of man. The young vultures avidly leaned on her every word as she described this food - only to learn that a man was too big to be killed by a vulture. How, then, was a vulture supposed to feast on his flesh? "We have not the strength of man," the mother vulture said,

and I am sometimes in doubt whether we have the subtilty: and the vultures would seldom feast upon his flesh, had not nature, that devoted him to our uses, infused into him a strange ferocity, which I have never observed in any other being that feeds upon the earth. Two herds of men will often meet and shake the earth with noise, and fill the air with fire. When you hear noise and see fire which flashes along the ground, hasten to the place with your swiftest wing, for men are surely destroying one another; you will then find the ground smoaking with blood and covered with carcasses, of which many are dismembered and mangled for the convenience of the vulture.

Much impressed by this, the young vultures still had an obvious question: Why didn't men eat their prey after killing it?

"Man," the old vulture responded, "is the only beast who kills that which he does not devour, and this quality makes him so much a benefactor to our species." But, she added, "man will, sometimes, remain for a long time quiet in his den. The old vultures will tell you when you are to watch his motions. When you see men in great numbers moving close together, like a flight of storks, you may conclude that they are hunting, and that you will soon revel in human blood." The young vultures thus knew what signs to look for when seeking human flesh; but one of them still had a concern. "I would gladly know the reason for this mutual slaughter," it piped up. "I could never kill what I could not eat."

The old vulture sighed. "My child," she said, "this is a question which I cannot answer, though I am reckoned the most subtle bird of the mountain." When she herself was as young as her students, she used to visit the eyrie of an ancient vulture who dwelt upon the cliffs of Carpathia. She had once asked him a similar question; and his opinion was that "men had only the appearance of animal life, being really vegetables with a power of motion; and that as the boughs of an oak are dashed together by the storm, that swine may fatten upon the falling acorns, so men are by some unaccountable power driven one against another, till they lose their motion, that vultures may be fed." Other vultures thought that they had seen "something of contrivance and policy" among the mischievous humans; and, said the mother vulture, "those that hover more closely round them, pretend, that there is, in every herd, one that gives directions to the rest, and seems to be more eminently delighted with a wide carnage."

"What it is that entitles him to such pre-eminence we know not," the old vulture concluded; "he is seldom the biggest or the swiftest, but he shows by his eagerness and diligence that he is, more than any of the others, a friend to vultures."



# Chapter 11

## Psychoanalyzing the Scavengers (both vulture and human)

Defy man and God, but you may not deceive the vultures, sons of Satan! They know whether a man be alive or dead!

-Vampire hunter Solomon Kane in Robert E. Howard's short story, *The Hills of the Dead* (1930)

Carrion-eating . . . seems to be to some extent a degenerate adaptation, a sort of parasitism, and the races which take to it do not survive . . .

-W. D. Matthew, "The Phylogeny of Dogs," *Journal of Mammalogy* Vol. XI, 1930

All living things in the neighbourhood had, as might be supposed, been startled by the tremendous fall to which his progress had given occasion. . . . one . . . chanced to be a *lammergeier*, or Alpine vulture, a bird larger and more voracious than the eagle himself; and which Arthur had not been accustomed to see, or at least to look upon closely. . . . one of these terrific birds had risen from the ravine to which the species gave its name, and having circled unwillingly round, with a ghastly scream and a flagging wing, it had sunk down upon the pinnacle of a crag not four yards from the tree in which Arthur held his precarious station. . . . it seemed encouraged by the motionless state of the young man to suppose him dead, or dying, and sat there and gazed at him, without displaying any of that apprehension which the fiercest animals usually entertain from the vicinity of man.

As Arthur, endeavouring to shake off the incapacitating effects of his panic fear, raised his eyes to look gradually and cautiously around, he encountered those of the voracious and obscene bird. . . . As if arrested by a charm, the eyes of young Philipson remained bent on this ill-omened and ill-favoured bird, without his having the power to remove them. The apprehension of dangers, ideal as well as real, weighed upon his weakened mind, disabled as it was by the circumstances of his situation. The near approach of a creature not more loathsome to the human race, than averse to come within their reach, seemed as ominous as it was unusual. Why did it gaze on him with such glaring earnestness, projecting its disgusting form, as if presently to alight upon his person? The foul bird, was it the demon of the place to which its name referred? and did it come to exult, that an intruder on its haunts seemed involved amid their perils, with little hope or chance of deliverance? Or was it a native vulture of the rocks, whose sagacity foresaw that the rash traveller was soon destined to become its victim? Could the creature, whose senses were said to be so acute, argue from circumstances his approaching death, and wait, like a raven or hooded crow by a dying sheep, for the earliest opportunity to commence its ravenous banquet? Was he doomed to feel its beak and talons before his heart's blood should cease to beat? Had he already lost the dignity of humanity, the awe which the being formed in the image of his Maker, inspires into all inferior creatures?

. . . . By waving his kerchief. . . he succeeded in scaring the vulture from his vicinity. It rose from its resting place, screaming harshly and dolefully, and repose, while Arthur Philipson felt a sensible pleasure at being relieved of its disgusting presence.



Thus ends young Arthur Philipson's encounter with a Lammergeier (above) in Chapter 2 of Walter Scott's novel *Anne of Geierstein* (1829). While I can't recommend Scott's frankly impenetrable prose to the casual reader, this excerpt does provide a gem of an example to illustrate the impact that a vulture can have on a person's mind. No sooner does it approach Arthur than he successively imagines it as a dastardly counterpart to the eagle, a demon of the mountains, a foreteller of his own death, and an impudent champion of the "inferior creatures" against the "dignity of humanity." And yet, Arthur merely has to wave his kerchief to scare it off; it's just a bird, after all.

But what a bird. Vultures are surpassed by few other creatures, and certainly by no other birds, in the range and vehemence of the responses that they can provoke from humans. Gods, demons, objects of beauty, objects of disgust, despoilers of corpses, chariots of the dead, ghouls and sentinels and baby-snatchers and guardians of the wilderness; there have been few roles in the enduring drama of the human mind that haven't been played by the supreme scavengers at one time or another. Each and every one of these roles is rooted in the inherent characteristics of the birds. If all of these roles seem ambivalent, even contradictory, when viewed as a whole; well, that's only a reflection of the ambivalence and contradiction in human views of the traits that make vultures what they are. Their ability to fly, their often-great size, their odd and sometimes fearsome appearance; but, most of all, their diet. The defining characteristic of vultures is the scavenging habit, the trait of feeding primarily or exclusively upon dead animals that have been killed by something other than the vulture itself. Vultures are far from unique among either birds or carnivorous animals in general in having carrion-

heavy diets, but they are unique in the extent to which they are adapted for scavenging, and in the near-total dependence of some vultures upon scavenging to feed themselves. In the minds of many people, the concepts of "scavenger" and "vulture" are very nearly synonymous, which goes a long way towards explaining why the admiration and vilification generated by scavenging tends to be heaped upon vultures far more than upon other scavengers.

Yes, I did say "admiration." Although the peoples of different cultures have expressed varying degrees of like and dislike for vultures for many different reasons, the idea of lambasting the birds solely because of unwillingness to kill their food appears to have been virtually nonexistent before medieval European times, and it has become a majority opinion only in the last couple of centuries. The Huma (Lammergeier) in Persia, and, to a lesser extent, vultures in Greece and Rome were honored precisely because they *wouldn't* kill; the Persian poet Sa'di felt that the Lammergeier "excels all other birds in nobility" due to its peaceable behavior, and the Roman historian Plutarch wrote that the Greek hero Heracles regarded the rare appearance of a vulture not with foreboding, but with delight due to the non-violent nature of the great bird. The more pacifistic- and ecclesiastic-minded people of medieval Europe sometimes expressed similar feelings about their vultures, and one can even detect an echo of applause for the California Condor's scavenging lifestyle in some of the modern literature surrounding that bird. It might be argued that these birds were exalted primarily because of their size and visual magnificence, and that their foraging habits were at best incidental to their admirers; nevertheless, in this day and age it seems astounding that anyone at all could express anything but contempt for the scavenging habit. After reading Chapters [7](#) and [8](#) of this book, I'm sure we're all well aware of the criticisms leveled against scavenging and scavengers in certain cultural circles - especially those of modern science, which originally arose in Europe, was fostered there and in North America, and has now spread around the world. The reasoning behind disapproval of scavengers typically goes as follows: scavengers are lazy, because they hunt motionless prey; they are cowardly, because they are afraid to attack the living; they are weak, because they need not overpower their food; they are craven, because they feed on what others leave behind; they are disgusting, because they eat rotting flesh; they are stupid, because their way of life requires no intelligence.

There's nothing unusual about people interpreting vultures in ways that deviate, sometimes dramatically, from detached and dispassionate reality. The problem with the scientific interpretations of scavenging, and the criticisms of vultures based upon them, is that the stated purpose of science is to objectively describe the universe with as little bias as possible; yet for most of its history, there was precious little objectivity and a great deal of bias to be found in "scientific" views of vultures. The continuous tirade against vultures and scavenging in general remains largely unchallenged as one of the last surviving vestiges of the Eurocentric, anthropomorphic viewpoint that once dominated the biological sciences. As far as science is concerned, we're now supposed to be living in a post-anthropomorphic age, in which animals are appreciated for what they really are without the yoke of human perceptions and emotions being thrust upon them. And yet, commentators who have always been quick to defend wild animals against charges of cruelty, or hate, or some similar human imposition upon the laws of the wild have typically remained silent (or joined in) when the "ignobility" of scavenging is mentioned. It certainly does no good for scavengers when the scarce attempts to defend their habits almost inevitably default into the rather pathetic excuse that "real predators" also scavenge when they can, and so the vultures shouldn't bear *all* of the contempt for such habits. Rarely does it seem to occur to anyone that the act of scavenging itself should be defended; or, more usefully, that an explanation should be offered of why it should be defended, and why the low opinion of scavenging held by many people is founded on misapprehension and ignorance. The simple fact



that so few animals even among the vultures depend exclusively on scavenging to survive is a sober testament to how daunting and demanding a lifestyle it really is. Many animals scavenge. Few can do it well enough that they are able to depend on it for food, and those that can are adapted for hunting their lifeless prey no less marvelously and formidably than is the most lethal predator in its adaptations for stalking and killing – despite long-standing zoological dogma to the contrary.

Aside from specifically deriding animals like vultures that specialize in scavenging, many writers have taken pains to portray scavenging as something that predators resort to only when in desperate straits; to hear them tell it, scavenging is only a last refuge of the young and incompetent, or of the senile and desperate. Scavenging has been described in supposedly objective zoological writing as “a form of degeneracy not uncommonly paralleled among extinct [i.e., *obsolete*] carnivores as well as among old and worn-out individuals of modern beasts of prey,”<sup>[1]</sup> and as an avoidance of “the age-old struggle [of predator and prey] in favor of a somewhat easier existence, but at the price of dependence upon accidental food sources and the leavings of other stronger and more sagacious hunters.”<sup>[2]</sup> To which I say: Bullshit. We’ve already established that the perception of vultures as hangers-on of predators is inaccurate. In primal ecosystems, vultures are successful not because they can filch meat from the kills of Lions, Tigers, Wolves, and the like, but because they can find and reach carcasses that the land-bound scavengers never find at all. Unfortunately, the myth of vultures as parasites upon predators continues to be perpetuated, despite the obvious logical flaw in the theory that not one, but two (or three, if both lineages of Old World vulture are counted) highly successful and widespread groups of birds live a wholly parasitic lifestyle that depends entirely on the good graces of much larger carnivores to function properly. That many modern vultures depend on the prey animals domesticated by humans – livestock – for food only complicates the picture. Not just because these vultures can be falsely accused of spreading diseases among domestic animals, or because they can be accused of attacking living animals as well as scavenging dead ones; but because the sight of vultures feeding on a dead carcass is, for some, an uncomfortable reminder that humans are doing the same thing. Ask a random person on the street if they are a “scavenger,” and you aren’t likely to hear an affirmative answer; yet animals eaten by humans are almost always killed before being eaten, usually long before they are ingested and often not by those whom ingest them. We, too, are scavengers; and aside from the presence of microbes, which are of no consequence to digestive systems completely immune to their effects, is there really any great difference between the well-cooked meat that we eat and the often well-rotted meat that the vultures consume? Vultures living commensally with humans in civil lifestyles have been subjected to much the same accusations – mostly from outsiders, rather than from the people who live with the birds – only with more vehemence and more disgust. The feeling seems to be that at least primal vultures feed on the leavings of something greater than ourselves, be it Mother Earth, Nature, or whatever gods one happens to believe in. Civil vultures, on the other hand, feed only on the leavings of humanity, on what we lowly, filthy beings leave behind; and are the lesser for it. There’s an element of truth behind these accusations; civil vultures do feed largely on by-products of human actions, like organic garbage and roadkill, that are considered vile and disgusting. Some of them, especially the Egyptian Vultures of India and the Hooded Vultures of West Africa, will even gorge themselves on human excrement. I hardly need to explain why those birds are often held in low repute.

It’s interesting to note that subsistence-level cultures that depend on active hunting and scavenging to supply themselves with meat tend to have a more positive view of vultures than agricultural societies, in which consumers depend on others to do the killing for them. So, too, are the sanitary services of civil vultures more appreciated in societies where urban cleanliness is a serious,

everyday concern. It would only be expected that the very concept of a “scavenger” arose in such a society, and so it did. The modern word *scavenger* is derived from the Middle English *skavager*, which was in turn derived from similar terms in contemporary Flemish and French. As the archaic *skavager* was so similar to its modern descendent in spelling and pronunciation, it's a bit surprising that its primary meaning was very different: a medieval *skavager* was an official inspector who collected tolls along roads or tariffs upon goods when they entered his district. As a secondary duty, *skavagers* were also charged with the task of keeping their roads clean and free of debris.

That secondary duty was ultimately the legacy of the *skavagers*. Though it wasn't easy work (as anyone who has attempted highway litter control knows), it was popularly considered to be a low-class job. It had plenty of company in that regard; around the world, people who publicly clean up others' messes are often thought of as “scavengers,” from the carcass-rendering untouchables of India to the aluminum can-collecting homeless of the United States. Despite the difficulty and importance of their work, these people tend to be held in palpable contempt by others, who like to think of them both as lower-class citizens (particularly in caste systems like that of India), and as freeloaders who can't or won't hold down “real jobs.”<sup>[3]</sup> Scavengers, it is said, live without paying the prices, monetary and otherwise, that others must pony up in order to survive. The *skavagers* may have demanded tolls, but the scavengers seem to pay none; not even those that everyone else has to pony up in order to stay alive! Such ingrained disdain has inevitably led to an unspoken feeling that the vultures, those cursed scavengers that leach off of us hardworking humans or off of “real predators,” should be grateful that they get anything at all.

Like so many other issues that inspire strong feelings and half-baked lies, the dichotomy of pure scavengers and pure predators is a construct of human imaginations; it has little basis in reality. Evidence is steadily mounting that scavenging as a survival strategy has been grossly underreported and underestimated in importance for just about all carnivorous birds, mammals, and reptiles, and even for some animals that are normally thought of as exclusively herbivorous.<sup>[4]</sup> Among mammalian carnivores, total avoidance of scavenging is not only very rare, it's also a mark of timidity. On the African plains, the only carnivore that shuns opportunities for scavenging is the Cheetah, which usually avoids carcasses for the simple reason that any scavengers of similar or larger size can drive it away with ease. (Yet even Cheetahs will readily scavenge in captivity, or in the wild when epidemics have wiped out their prey.<sup>[5]</sup>) We've already seen that many vultures will readily kill prey, and that they are often joined at carcasses by supposedly predatory raptors like eagles. Among the birds of prey, it seems that all but a few ultra-specialized species will feed on carrion if given the opportunity, however rarely such opportunities might occur in the wild, and that statement does include species like large falcons which are usually thought of as purely predatory. One ornithologist witnessed a dead gull that was successively consumed by a Peregrine Falcon, a Rough-legged Hawk, and a Northern Harrier, although none of them had actually killed the gull.<sup>[6]</sup> All three of those raptors - especially the Falcon - are popularly thought of as predators and nothing but, so the implication is clear: apparently *someone* forgot to tell the birds that they weren't supposed to debase themselves like that.

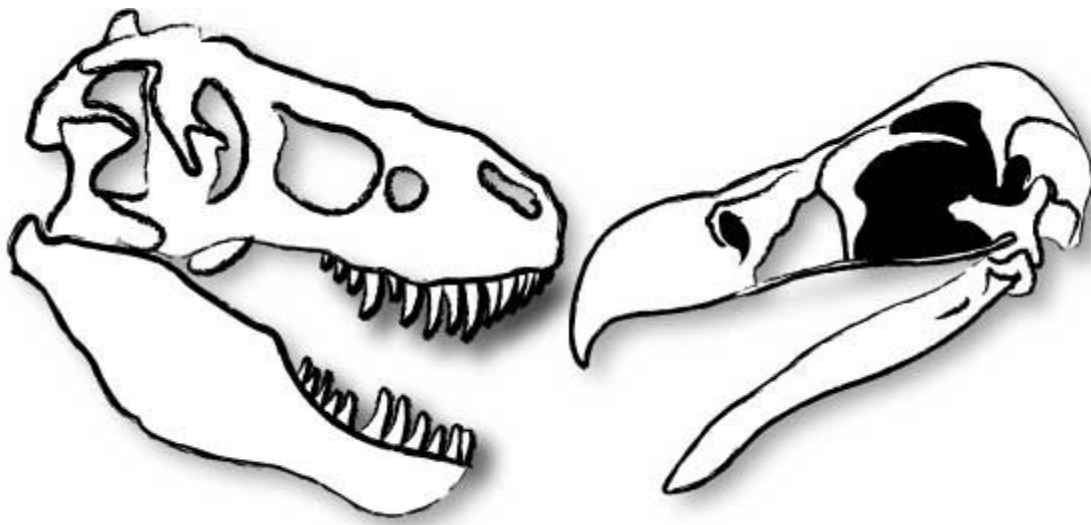
Although the fiction of the predator/scavenger divide is now widely known in the scientific world, that knowledge has proved to be only a flimsy obstacle for anyone trying to demarcate a definite distinction between scavengers and predators, or attempting to heap scorn on the former and lionize the latter. This scavenger-bashing has even been applied - backdated, you might say - to extinct vultures. In 1932, the paleontologist Hildegard Howard postulated that the North American *Errantgeier* had gone extinct at the end of the ice ages for no reason other than that this “weak-footed,

semi-aquiline type . . . was not capable of surviving in competition with the variety of true eagles with which it was contemporaneous." This was a rather odd and illogical comment coming from a scientist who herself believed that the *Errantgeier* belonged to a lineage that had lasted for more than 20 million years,<sup>[7]</sup> and that presumably had ample experience of competition with "true eagles" during that time. It is also disingenuous, considering that no fewer than three North American eagle species contemporaneous with the *Errantgeier* went extinct at the same time as it did.<sup>[8]</sup> There's no avoiding the conclusion that Howard very badly wanted the scavenging bird to have been forced into extinction by "real predators," and that she wasn't going to let a little thing like hard evidence stand in the way of that desire.

Not coincidentally, this strategy was also used by more than one party in the argument over the theory that *Tyrannosaurus rex*, until recently the largest known carnivorous dinosaur and long thought of as the greatest land predator in the history of the world, was actually a scavenger. Suggestions that it was less a giant-killer than a carrion-eater had been offered at least as early as 1917, but the scavenger theory really became popular in the 1980s, sparking off a venom-spewing debate among both professional and amateur dinosaur enthusiasts over the foraging habits of a 65 million-year-old reptile. An objective observer of this debate would immediately notice a couple of very odd aspects to it (aside from the fact that it existed at all). One was that the proponents of the scavenging theory, after supporting their conclusions with what was usually very flimsy evidence, were less interested in exploring the potentially incredible ecological and evolutionary implications of a gigantic land-bound scavenger than in mocking and ridiculing *T. rex* for its lack of hunting prowess. A typical comment from one proponent was that the only reason that the scavenging *T. rex* was able to exist was that it inhabited a world devoid of "the true active predators of the age of mammals. . . . And active predators might even have eaten the tyrannosaur itself."<sup>[9]</sup> Such smug condescension recalls the spurious reputation of another unusually large carnivorous reptile: the Komodo Dragon, which, despite the fact that it's a modern and specialized member of the highly advanced monitor lizard family, is often thought of as a refugee from the age of the dinosaurs. Although the Dragons in reality are both scavengers and formidable predators that can kill animals the size of Water Buffalo, many writers have claimed that they aren't, one going so far as to claim that the gigantic lizards are incapable of killing Chickens, let alone anything bigger.<sup>[10]</sup> Undoubtedly the only reason that the Dragon hasn't been derided as a parasite of "real predators," like vultures and hyenas, is that it happens to be the only native large predator on its islands.

The other odd aspect of the *T. rex* debate was that the arguments coming from the anti-scavenging faction often verged on the edge of hysteria and owed more to knee-jerk emotion than to hard evidence, or even to common sense. Some had an air of outright desperation, as in a prominent paleontologist's book about *predatory* (not "carnivorous") dinosaurs, in which he claimed that *T. rex* was no scavenger because its powerful teeth and skull were "in sharp contrast" to the "weak beaks" of vultures, "the only true living scavengers." The hell of it is that once the faulty facts are corrected, this particular comparison actually supports the *T. rex*-as-scavenger hypothesis, since the dinosaur's robust dental equipment bears a certain adaptive resemblance to the heavy, strong bills of large vultures. As seen below.





Such debates may be unintentionally entertaining, though not terribly productive of any useful conclusions; but taking a broader view of things, it doesn't really matter whether *T. rex* was a scavenger or predator (or both, which is much more likely), since it's impossible to prove either case without a living animal to observe. As is suggested by the less-than-impressive, selectively interpreted evidence and notable lack of scientific objectivity on both sides of the debate, this fracas was not primarily a dispute about *Tyrannosaurus rex*, the saurischian archosaur discovered by Barnum Brown in 1902. Rather, it was a dispute about T-Rex, the icon. And few who grew up with the modern myth of T-Rex - a movie star, an idol of millions, and a selling point for everything from popsicles to glam rock - wanted it to be knocked from its pedestal as the *ne plus ultra* of predators. But, as always, there were a few party-crashers eager to dethrone the king, by exposing it as one of *those*. A six-ton garbage disposal, a bipedal reptilian hyena, a grossly oversized vulture; a *scavenger*. Truly, this debate says much more about the grotesquely distorted lens through which scavengers are viewed in the modern Westernized world than about the dinosaur itself.

It also says something about the powerful hold that the cult of the predator still exerts upon the life sciences. As the literature of the *T. rex* debate amply demonstrates, there are many people, scientists and laymen alike, who lack a clear understanding of what being a scavenger really means, and of the roles that scavengers play in the living world. With predators, the manner in which the prey is sought out, caught, and killed is paramount; everything that follows is an afterthought. Scientists can thus outdo themselves in observing, describing, and analyzing the thrill of the chase, the terror of the ambush, the high drama of the death struggle, and finally the glorious tragedy of the prey's gruesome but necessary death. Scavengers, on the other hand . . .

In their 1968 book *Eagles, Hawks, and Falcons of the World*, often regarded as the definitive written resource about raptors, the ornithologists Leslie Brown and Dean Amadon wrote that it was "reasonable to suppose that the young of large vultures, as soon as they are able to fly strongly . . . will be able to come to carcasses in the same way as do their parents," and at that point they would become fully independent of parental care,<sup>[11]</sup> having fully mastered the many risks and nuances of the scavenging lifestyle. By being able to "come to carcasses." Curiously, Brown and Amadon remained silent upon the matter of what would happen *after* the young vultures came to the carcasses. Maybe they envisioned a sort of scavenging osmosis, in which the young birds would just safely hang about nearby and the carrion would magically materialize in their stomachs with no further action on their part.

With scavengers, the scientific focus has overwhelmingly been upon the act of eating, rather than upon the way in which the food is found; and it goes without saying that the difficult and dangerous competition faced by the scavengers is often simply ignored. As we've seen, the perception of vultures as "eating machines" has long played a dominant role in their characterizations, to the extent that many of the common names for vultures were and are based upon onomatopoeic terms for tearing and swallowing; but such linguistic generalizations of vultures at least have the justification that spoken language *requires* such simplifications. Science, which prides itself upon its arcane complexity and its observations of almost-unobservable events, can make no such excuse; yet its approaches to vultures and scavengers in general have been no less simplified and stereotyped. Inadvertently selective observation has also helped to nurture the dichotomy of scavenging and predation, as the diets of animals thought of as "predators" are typically ascertained by examining regurgitated pellets, nest contents, and the like. Any carrion consumed by a predator is likely to be invisible to examination of these methods, as it is usually digested in its entirety; besides, it's often assumed that *any* animal remains found at a predator's feeding site were killed by the predator, unless those remains are of an animal that would be well outside of the predator's capacity to kill. The diets of creatures viewed as "scavengers," on the other hand, are usually ascertained by observing them at carcasses, where no one is likely to see them kill anything. Problems of selective observation in the study of wild animals are not unique to scavenging; biological literature is rife with examples of scientists who failed to observe important patterns of behavior simply because they restricted their observations to situations when that behavior could not possibly take place. The primary reason why Africa's Spotted Hyena was viewed as a parasitic scavenger of Lion kills for so long was because the Hyenas were observed only during the daytime. Hyenas mainly scavenge during the day, but perform most of their hunting at night, as more recent observations have shown. Selective observation of carnivorous animals contributes greatly to the feeling that there is a deep division between predator and scavenger; and to the belief that, except for the comparatively few animals known to genuinely depend on carrion, scavenging is just an unimportant adjunct of the predatory habit.

The spectacular and ongoing successes of the most dedicated large scavengers, the vultures, tell another story. Even among living birds, vultures aren't alone in depending on carrion for a majority of their food. But the vultures are notable for the special adaptations that they have developed for scavenging, and for the extent to which some of them have specialized in it. Individuals of some vulture species, such as the California Condor, the Turkey Vulture, and the griffons, may live out their entire long lives without ever attacking living prey of any kind. This simple fact is so easily taken for granted as an integral part of the vultures' lives that it isn't often noted how remarkable it really is. The only land carnivores known to approach such a lifeless exclusivity in their diets are two species of hyena, the Brown and Striped (but not the more famous Spotted). By way of constant, solitary nocturnal searching, these hyenas can glean a majority of their food from wander scavenging - over 90% of it, according to some studies - but even they will opportunistically hunt live animals, and supplement their diets with insects and fruit.<sup>[12]</sup> All evidence indicates that no wild carnivorous mammal or reptile could possibly live its entire life without killing, unless it was willing to spend all of its foraging time around humans and their waste; and though some non-vulturine birds theoretically could, it seems that few if any actually do. A meat-eating animal that need never kill for its meat is a unique marvel of adaptation.

It has to be, because hunting the dead is a very different task from hunting the living. For every obvious advantage to recommend scavenging over predation - for example, unlike the living, the dead can't escape - there's an obvious disadvantage: because the dead can't move or make noise,

they are less conspicuous and therefore more difficult to find. While these strategic differences pose grave dilemmas for carnivorous animals, the potential prey of those carnivores can exploit them in order to keep themselves alive. Many species of animal are known to play dead as a defense against predators; when approached by real or perceived threats, the creatures will abruptly stop moving, collapse, and go limp. Some animals deliver truly bravura performances as corpses: North American Hog-nosed Snakes flip onto their backs, hang out their tongues, and defecate; while the most famous feigners of death, the Opossums, can apparently make themselves totally insensitive to any injury inflicted upon their bodies while in that state. Playing dead is most likely a semi-voluntary application of the behavior that ethologists call *tonic defensive immobility*, in which an animal stops all physical movement when it's been rendered helpless; for example, when it's been rolled onto its back. Given that this trick has arisen (and persisted) independently in so many different and unrelated animals, playing dead is clearly an effective defense against predation.

The rote explanation for the popularity of playing dead is that most predators will eat only prey that they have killed themselves, and, when faced with an apparently dead prey animal, they will pass it up because they disdain carrion. But aside from being both silly and extremely anthropomorphic, this explanation does not square with reality, as can be attested by anyone who's ever seen a Dog carrying a death-feigning Opossum in its jaws like a limp chew toy. Virtually all carnivorous mammals, birds, and reptiles will readily scavenge dead animals; and from a strictly culinary standpoint, there's no reason why a carnivore would choose not to eat an apparently dead but intact carcass. The true answer to the riddle of the limp Opossum lies in the psychology of predators, and not in their eating habits; in differing states of mind for different strategies of obtaining meat. A scavenger-predator in a predatory state of mind has a certain searching image in mind when it sets out to hunt, and no dead animal fits that image. Hence the playing dead defense works against such a hunter; its killing instinct is disabled because the sights, sounds, and smells that would normally induce it to attack are absent. Carnivores with more generalized feeding habits will readily eat dead prey that exhibits no signs of life – provided that they approach such prey with the intent of scavenging, rather than killing. A scavenger-predator in a scavenging state of mind is looking for dead prey; its searching image is of an animal that is motionless, limp, and breathless. Carnivorous animals often appear very cautious when they approach a newly found carcass; a Raven, for example, may cautiously walk towards a dead deer, peck it once, jump back, approach it again, peck once or twice more, retreat once more, and only then begin to feed. Perhaps these seemingly timid scavengers are testing their finds against their searching images; for any live animal, no matter how moribund and helpless, simply wouldn't be what they're after.

Prey animals may be able to save their lives by blurring the division between scavenging and predation, by inhabiting a sort of gray area between live and dead prey. This strategy is most noticeably adopted by the young of some of the more fleet-footed herbivorous mammals, such as deer, antelope, and gazelles. Infants of these species are faced with an acute problem as soon as they drop from their mothers' wombs: they have no effective strategy for avoiding predators. Their parents depend almost solely on speed and agility to escape predators, and are usually not well suited for fighting off predators in direct confrontations. Young animals, being comparatively small and weak, are even more ill-suited to directly confronting predators; yet with their short, wobbly legs and as-yet undeveloped muscles, they are also incapable of keeping up with their parents in a headlong escape from whatever would-be killers they might encounter. Their solution, ingenious to the point of absurdity, is quite simple: they hold still. When their mothers must feed, or drink, or engage in any activity where predators might be encountered, the young are left in a decent hiding place and



remain there, motionless and silent as the dead, even if some canine or big cat begins nosing around a just a few paces away. Dangerous as it sounds, this strategy works well enough for the herbivores to maintain their populations; and it works specifically because predators, with their predatory searching images, are looking for movement above all else as a signal for the presence of prey.

Still, the strategy is not foolproof. Some concealed, motionless fawns are discovered and killed; and, surprisingly, it appears that the fawns have more to fear from carnivores that are adept at wander scavenging than those that favor predation. The Maasai herders of East Africa say that when Thomson's Gazelles are fawning, Lappet-faced Vultures will very deliberately hunt for the fawns concealed in the grass; and the Lappet-faces also accompany Springbok Antelope of the Kalahari Desert during their lambing season, quite possibly in order to partake of any young Springboks they can find.<sup>[13]</sup> This desert was the same area where the biologist M. G. L Mills undertook a field study of the Brown Hyena, one of the few mammalian carnivores that, like the vultures, is adept at wander scavenging and derives most of its food from found carrion. Mills noted that the *only* time these Hyenas seemed to purposefully hunt down live prey was during the lambing season of the local Springbok.<sup>[14]</sup> In the Andes Mountains of South America, it's widely believed that Andean Condors will prey upon the young of wild Vicuñas and domestic Llamas, Alpacas, and Sheep, and that the young animals are at the greatest risk from the Condors early in their lives, when they are unable to stand and walk well.<sup>[15]</sup>

Most remarkable is an incident of fawn-hunting involving the Turkey Vulture, a bird that is almost unanimously regarded as unpredatory, even to the extent of actually being afraid of living animals.<sup>[16]</sup> Herbert Brandt's 1951 book *Arizona and Its Bird Life* included a second-hand report of some curious vulture behavior from Ila Healy, a rancher in the Huachua Mountains of Arizona. She noted that large numbers of Turkey Vultures appeared in the foothills of the mountains during the summertime fawning season for the local White-tailed Deer, "flying up and down the sloping canyonsides close to the ground." She felt that the Vultures were making special efforts to find the newborn Deer fawns, each of which was "no larger than a jack rabbit, weighing about five pounds [2.3 kg], and . . . in a helpless condition." These youngsters were too small to either flee or fight, and so protected themselves from predators "by lying motionless at the approach of danger" when unattended by parents. While riding after her Cattle in the foothills one day, Healy heard "the faint bleating of a small fawn." She thought that her Dogs might have inadvertently discovered one and attacked it; but as she approached the sound on horseback, she saw a Turkey Vulture fly off. She found "a young deer cowering to earth in terror" at the spot where the Vulture had risen. Having heard local stories that the normally peaceable Vultures sometimes attacked and killed fawns, but never having witnessed such a thing herself, Healy was intrigued enough to retreat a short distance away and see if the vulture returned. "A little while later" it did return,

alighted close to the little deer, then walked up to it and proceeded to peck at the helpless creature. Meanwhile the little animal, true to its instincts, remained perfectly motionless, but cried out pitifully in a bleating voice. At that I rushed out and again frightened the vulture away.

The mother of the fawn never appeared during the Vulture's attack; Healy thought that it might have been afraid of the three herding Dogs she had in tow,<sup>[17]</sup> but it's also possible that the old Deer was simply out of earshot and unaware of the drama surrounding its fawn. A Turkey Vulture attack would certainly be much quieter than the attack of, say, a Coyote, and such silence would work in the Vulture's favor when avoiding parental wrath. In any case, it seems likely that the fawn would have been killed and eaten by the Vulture if Healy hadn't been present.

Judging from these and similar reports, keeping motionless is a superb defensive strategy against those carnivores which are adapted and hard-wired to chase down their prey, but is much less effective against those which are adapted and hard-wired to track down concealed but motionless objects. Animals that attempt to avoid being chased down by sitting still, or that attempt to foil death by impersonating the dead, thus face a trade-off: their behavior may allow them to avoid most carnivorous creatures, which are on the lookout for any potential meal with the standard "fight or flight" response; but it may leave them at the mercy of wander scavengers, which normally wouldn't even bother with anything that draws breath. For those animals that adopt such behavior, the risk of losing a few of their number to scavengers is apparently worth running, and the benefits are great. Far from playing on anyone's disdain for carrion, they can elude predation by *using the predators' own searching images against them*. It's a fantastic feat of psychological warfare that only Mother Nature could pull off.

Scavengers have their own searching images, of course; quite different from those of primarily predatory animals; but since, in evolutionary terms, the vultures are predators that became scavengers, their searching images must also have been originally predatory. That the ancestral groups of both vulture types - raptors for the Old World vultures and storks for the New World vultures - had certain physical predispositions for the vulturine lifestyle is self-evident. Both are mainly large, powerful, carnivorous birds adapted for traveling long distances by soaring flight. But an easily overlooked factor that may be just as important to their development is that the ancestors of both New and Old World vultures arguably also had *psychological* predispositions for the scavenging lifestyle.

To understand why, we must first split a few twigs in the Old World vultures' family tree. For many years, it was thought that the sea- and fish-eagles - a group that includes well-known birds like the Bald Eagle and African Fish-eagle - were the closest living relatives of the Old World vultures, because they shared many morphological and behavioral traits with the vultures: large size, relatively long necks, heavy builds, deep, powerful bills, and foraging habits that included a great deal of scavenging and piracy. More recent genetic testing indicates that the little-studied snake-eagles, rather than the sea-eagles, are the Old World vultures' closest relations.<sup>[18]</sup> Upon a cursory comparison of the snake-eagles and vultures, this conclusion seems downright bizarre. Snake-eagles aren't particularly large, the biggest species being not much heavier than the smallest vultures; they don't have large bills or long necks; and, most noticeably, they have little inclination for scavenging. Only one snake-eagle, the remarkable Bateleur, habitually eats carrion in the wild. But a deeper analysis reveals surprising physical similarities between the snake-eagles and vultures, and the specializations that the snake-eagles have evolved for dealing with their prey have obvious potential for scavenging as well. For starters, these eagles have heavy, stubby feet with talons that are quite short compared to those of other eagles, and are capable of exerting an incredibly strong grip in order to subdue their slender, long-bodied prey. Old World vultures have similarly reduced talons, yet they retain the raptor's trademark prehensile foot. Rather than transporting their food back to the nest in their talons, as most raptors do, the vultures carry it in their crops. It's easy to picture how this habit could have stemmed from the snake-eagles' habit of carrying *their* prey in their crops; presumably because a dead snake dangling from their talons could easily be seen, and stolen, by other birds. When feeding their young, these eagles regurgitate meals, rather than tear them up with their bills and offer them to their chicks piece by piece as most raptors do. The typical Old World vultures also regurgitate food for their young, in the form of partially digested liquid rather than snakes. And, like most vultures, snake-eagles lay but one egg, which requires an unusually long period of incubation before hatching. The

hypothesized relationship between the two groups certainly isn't damaged by a number of reports of Old World vultures attacking and killing snakes, as large as a 14-foot (4.3 m) python.<sup>[19]</sup>

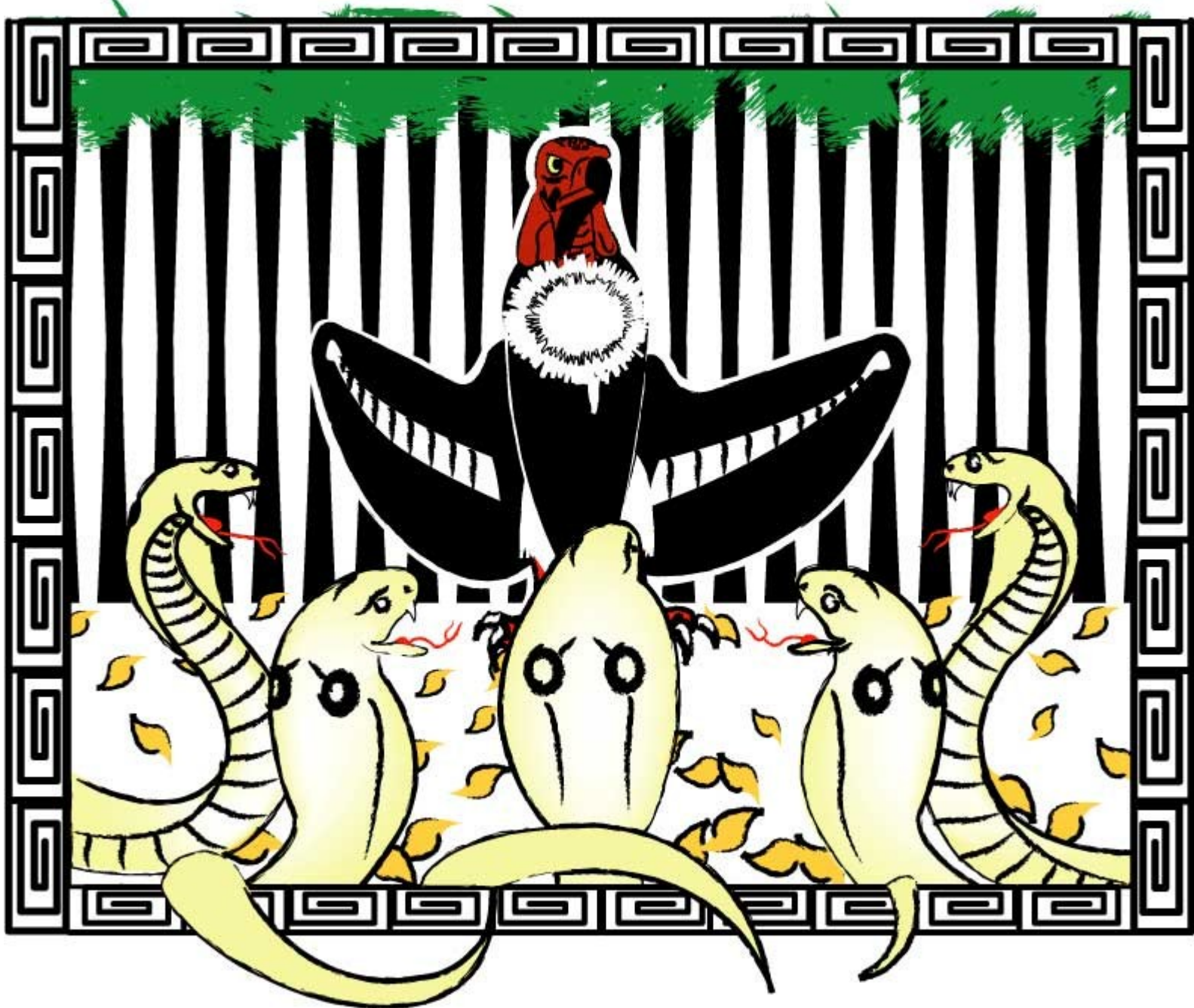
Psychological parallels between the vultures and snake-eagles aren't quite so easily analyzed, but a few parallels can be highlighted simply by comparing the challenges of preying on snakes to those of preying on other animals. Unlike most birds and mammals, snakes have little hope of outrunning predators; their limbless shape precludes great bursts of speed, and their cold-blooded metabolism ensures that they tire quickly. Snakes instead rely on camouflage as a first line of defense;<sup>[20]</sup> and of course camouflage works best if the animal in question remains motionless, not giving itself away by movement. Snake-eagles, then, don't necessarily look for movement when hunting; rather, they look for subtle irregularities in the landscape, which may represent camouflaged prey. To eyes searching the landscape from a bird's-eye view, what is a dead carcass if not a subtle irregularity? It's but a small step from searching for a well-camouflaged, motionless snake to seeking out an easily-overlooked, motionless carcass. The only snake-eagle that frequently engages in scavenging, the Bateleur, provides a case-in-point, as it feeds to a large extent on small carcasses - many so small that the eagle can swallow them whole. A dead rat isn't easy to find in the midst of a savanna overgrown with tall grass and brush; but the Bateleur can do it, by incessantly scanning the ground as it flies tirelessly across the African skies. Perhaps the earliest Old World vultures found their meals in a similar manner.

Predispositions for snake-eating are less obvious in the New World vultures. They are, after all, a much more ancient group than their Old World counterparts, and therefore farther removed from any ancestors that plied a primarily predatory trade. Even so, it is common knowledge that the storks and associated birds that are the New World vultures' closest living relations readily prey on snakes; some members of the family, such as the Sacred Ibis of Africa, have even become famous for it. And one trait of the New World vultures that observers have mentioned over and over again is an exceptional attraction to snakes, dead or alive. Several reputable sources suggest that the Turkey Vulture, which is among the least predatory vultures and has difficulty with dispatching just about any prey, instinctively recognizes living snakes as prey and possesses an ingrained method of attacking them. In *A New Voyage to Carolina*, John Lawson mentioned that the "turkey buzzard. . . . [is] reported to be an enemy to snakes by killing all they meet withal of that kind."<sup>[21]</sup> Mark Catesby concurred in *The Natural History of Carolina, Florida, and the Bahama Islands*, saying that although the vultures were "generally thought not to prey on anything living . . . snakes are their favorite food."<sup>[22]</sup> A Turkey Vulture kept captive by an A. K. Pierce of Pennsylvania was sometimes "given a snake (dead or alive)" as a treat; upon spotting the serpent, "it invariably would spread its wings and tail to their fullest extent, and would then circle its prey for half an hour or more, stamping its feet at intervals, before finally pouncing on and devouring the reptile."<sup>[23]</sup> Others have noted that in North America, dead snakes attract far more vultures than would be expected to arrive at such small carcasses; that is, a dead snake weighing only a pound (.5 kg) or less may draw more vultures than a dead deer or cow. One observer of Turkey Vultures in the eastern US noted that snakes were "evidently a choice relish, because one dead snake will call fifty vultures, more or less, to the vicinity of its demise,"<sup>[24]</sup> although only one or two birds at a time could feed on it. Vultures, despite their notoriously indiscriminate tastes, may still retain a gourmet's archaic fondness for snakeflesh.

This snake-hunting ancestry allows us to postulate some possible steps in the psychological development of vulturine behavior. If a bird is already well adapted for preying on slow-moving (or motionless), well-camouflaged, ground-dwelling prey, then it may be just a small step in moving on to eating small carcasses, which are also notably lacking in motive faculties, are almost always found on



the ground, and are often difficult to find. The bird may then graduate to the next step: depending largely on smaller carcasses or live prey for food, but also making a habit of visiting larger carcasses, which are easier to find, but are also more thinly spread, more difficult to break into, and encourage tougher competition from other scavengers. And the most highly adapted birds along this line of development need no longer bother with live prey at all, nor much with smaller carcasses; they've advanced to the point where they can depend on large carcasses for food. These are the griffons and (to a lesser degree) the condors, the "super-vultures." One wonders if fate has played a private joke by granting them snake-like necks.



The most curious aspect of the rather arcane association between snake-eating and the vulturine lifestyle is that there is a fair amount of folklore and mythology that explicitly suggests an existing predator-prey relationship between vultures and snakes. Among the Gurung people of Nepal, it's said that the vulture, *mubru*, is the lord of *mu*, the sky; while the snake, *sabru*, is lord of the earth, *sa*. As such, the two are irrevocably opposed – and like most Eurasian cultures, the Gurungs tend to

view the proud lord of the sky as an ally, in contrast to the insidious and potentially dangerous lord of the earth.<sup>[25]</sup> Other vulture vs. snake stories have already been recounted in the preceding chapters - see, for example, [the legend of the implacable enemy of snakes](#), Garuda, in Chapter 4 - but we haven't yet heard the most ethnologically intriguing of these tales, told by the Birhors people who dwell in the jungles of northeastern India. The story goes that the wood god Mahadeo stayed out cutting wood for so long that his wife, Parvati, began creating creatures to irritate or frighten her husband into coming home. The last of Parvati's creations were snakes, which slithered, hissing, towards Mahadeo. Instead of fleeing, Mahadeo took a piece of wood and transformed it into a *Ganda garur*, a kind of vulture that eats snakes; the bird duly pounced on and devoured but one of the serpents, with the lone survivor giving rise to the present race of snakes.<sup>[26]</sup> The *Ganda garur*, a name that translates rather lyrically as "snake-charmer of the woods,"<sup>[27]</sup> is also known as in Hindi as *Kannara gidh* ("forest vulture"),<sup>[28]</sup> but we know it as the Pondicherry Vulture, the only vulture of India that both lives in woodlands and is thought to occasionally kill its own prey. Yet there seem to be no authentic records of Pondicherry Vultures preying on snakes, leaving the question of the tale's reality open. One could certainly argue the point about whether such stories are intended to reflect actual events, or are better thought of as Jungian battles between Sky in the form of vultures and Earth in the form of snakes; but when the obscure folklore of hunter-gatherers points in the same direction as advanced genetic testing, I think it'd be wise to pay attention to the implications.

The ornithological community would be reluctant to accept the vulturine behavior in the Birhors' folktale as credible, partly because it *is* just part of a folktale, but also because it would dramatically clash with the long-standing dogma stipulating that vultures don't, or can't, kill prey. There is some substance to that objection; after all, with the sole exception of the Palmnut Vulture, all vultures are believed to depend on scavenging for a majority of their food. It follows that all vultures (even the Palmnut, which does scavenge occasionally) can enter a scavenging state of mind. But some species are clearly more firmly locked into it than others; some vultures have carried their special adaptations for scavenging to the point where it's an uphill battle for them to enter a predatory state of mind.

There is a certain odd irony in the lack of scientific attention that has been granted to scavenging; because, at least as practiced by vultures, it's much easier to observe in the wild than predation. While anyone who lives in most vulture-populated areas can watch the birds in the act of scavenging with a modest expenditure of time and effort,<sup>[29]</sup> it isn't at all unusual for a dedicated wildlife biologist to intensively study a single species of predator for months, even years, without ever once actually catching it in the act of predation. It follows that the predatory behavior of vultures, which are only part-time predators at the most, is even more secretive. With the possible exception of the New World's Black Vulture, the four species of dark vulture in the Old World are thought to be the most predatory vultures alive today, but observers' accounts of predation by dark vultures are still quite rare. The reliable reports of predation by the dark vultures that do exist suggest that the predatory techniques of these birds aren't terribly different from those of other raptors: the vultures pounce on their prey from above, pin it to the ground with their feet; and, if the prey isn't killed outright by the impact or the piercing and crushing action of the bird's talons, it's then dispatched by pecking and biting.<sup>[30]</sup> Even those ornithologists who do accept that the dark vultures are predatory often disparage the killing prowess of the birds, claiming that the vultures are too slow and clumsy to attack any but the most immobile prey; but recent studies indicate that at least one dark vulture, the [Lappet-faced](#) of Africa and the Near East, is a far more creative and effective predator than it's previously been given credit for.

For some years, the prevailing opinion among people familiar with Lappet-faces in the wild was that the Vultures were at least part-time predators, but good observations of predation by credible observers were lacking.<sup>[31]</sup> Until 2006, when one of the most remarkable field observations of vulture behavior in recent years was witnessed by the biologist Graham McCulloch at the Makgadikgadi wetlands in northern Botswana, southern Africa. These wetlands are an important breeding site for the Greater and Lesser Flamingos, with tens of thousands of pairs of the stately pink birds congregating every year to build nests and raise chicks. During the Flamingos' breeding season, Lappet-faced Vultures congregate near the Flamingo colonies in large numbers, along with many Steppe and Tawny Eagles. These three raptor species are considered the "most consistent and effective predators" of the Flamingos. There were prior reports of Lappet-faces eating Flamingo eggs and killing Flamingo chicks, including at Makgadikgadi,<sup>[32]</sup> but no one bothered to record the techniques that the Vultures used in their predatory forays.

The Lappet-faced Vultures observed by McCulloch at the Flamingo colonies initially stuck to scavenging dead chicks that were killed by nocturnal predators or other causes. Before long, some of them adopted a more lethal approach:

Once the carcasses were devoured, the vultures took to the air and, climbing on the thermals, came together in menacing spirals over the flamingo creches. As if orchestrated, the Lappet-faced Vultures took it in turns to attack the creches, suddenly diving from a great height to swoop in on stragglers while the chicks scattered to avoid the approaching danger. . . . Occasionally the chicks would escape, but in general as many as five chicks were taken within minutes. . . . In some cases, a successful vulture would leave quickly to hunt another chick as others descended on the first kill. After roughly 20 minutes, the vultures would take to the air again, to climb, regroup and re-orchestrate another attack.

The Flamingos were often able to dodge the Vultures' initial attacks; if they did, the Vultures simply switched their pursuit to the ground, chasing down the Flamingos on foot. The Vultures also made a habit of pirating the kills of the Tawny and Steppe Eagles that frequented the Flamingo colonies; as these smaller raptors were much lighter and more agile than the Vultures, they were better able to hunt the Flamingos from the air – but they were also no match for the Vultures when defending their kills. McCulloch judged that this Vulture predation "had a profound impact on chick mortality rates." The most impressive display of predatory skill by the Vultures came only after the Flamingo chicks had fledged, and were making their first attempts at flight.

When the Flamingos first started practicing their initial flights, the eagles took a heavy toll of them; and, in McCulloch's words, "amazingly, the vultures too became aerial combatants and began hunting the fledglings in the air." Squadrons of up to seven Vultures would chase down Flamingo fledglings, using what appeared to be coordinated group attacks to exhaust the fledglings before going in for the kill. The lead Vulture in a squadron would pursue a Flamingo until the hunter either tired or missed a stoop at its target; at that point, the leader would retire, and the following Vulture would take over the pursuit, much as a pack of Wolves will take turns running down a Caribou. These relay chases lasted as long as five minutes, and though the young Flamingos sometimes managed to escape, many of them fell victim to the hunting squadrons. After a Flamingo was killed, the Vultures would devour it on the ground in a matter of minutes. The hunting Vultures decimated the Flamingos that were left in the colony; on the final day of the breeding season, "the vultures had perfected the technique to such a degree that they eliminated the five remaining flamingos in spectacular displays of persistence, stamina and, above all, team effort." Due to lack of prior evidence for this specialized and complex predation, McCulloch left it an open question whether the Lappet-



faces have been engaging in these hunts for millennia, or if they've only recently learned how to hunt in groups; but he did note that none of the other vultures or eagles seen at the Flamingo colonies were observed to hunt cooperatively.<sup>[33]</sup>

Many different birds of prey have been seen hunting in pairs, typically with one bird serving as a decoy or attempting to flush prey from hiding while the other attempts the actual attack. However, most books and articles on the topic maintain that group hunting by three or more raptors working together is found only in the Bay-winged or Harris' Hawk, a New World raptor that regularly hunts prey in groups of up to six individuals. Golden and Wedge-tailed Eagles have rarely been observed hunting large mammals like adult deer and kangaroo in groups, but the eagles that took part in these hunts behaved more like unruly mobs than coordinated hunter-killers. As many as 15 eagles would circle over a fleeing mammal, with birds darting down from the mob to strike their prey until it was brought down, at which point the eagles would engage in their usual squabbling over the carcass. Ethologists have termed these attacks "chaotic" and opportunistic, because it appeared that rather than making a concerted effort to coordinate amongst themselves, many eagles just happened to be hunting the exact same prey animal at the same time. The eagles involved displayed little if any cooperation and no attempt to define roles among themselves,<sup>[34]</sup> none of the eagles "took the lead," unlike the hunting Lappet-faced Vultures. The behavior witnessed by McCulloch, in which a group of raptors made an organized, coordinated effort to chase down prey, thus appears to be almost unique; although it wouldn't be surprising if some of the Lappet-face's close relatives, like the Monk Vulture and the White-headed Vulture, also engage in similar social hunts.

Social hunting does occur among the more distantly related Old World griffons; but as these vultures are even more cumbersome in the air than the Lappet-faces, it's understandable that they've only been reported to attack prey on foot and in groups. Griffons in Africa and more recently in Europe have been seen to wound or kill livestock in just such a manner during times of dire food shortage.<sup>[35]</sup> When discussing the feeding habits of White-rumped Vultures in his book *An Introduction to Malayan Birds*, the ornithologist G. C. Madoc made the startling claim that in the Malay Peninsula, "if there is a shortage of animal offal the wily Vultures will form a circle around a flock of domestic ducks innocently feeding in a field, and they will quietly contract the ring until the moment comes for efficient and bloody slaughter!"<sup>[36]</sup> If Madoc's description was accurate, these Vultures engaged in coordinated and cooperative predation of the highest order, which in terms of methodical complexity rivals any predatory strategy that's been reported from field studies of group-hunting mammals. Unfortunately, the behavior detailed in his anecdote appears not to have been recorded by anyone else. The apparent preference of most vultures to attack prey in groups, rather than singly, may partly explain why so few falconers have successfully trained vultures for hunting; falconers usually fly their hunting birds at their prey singly, to prevent them from interfering with or injuring each other during the kill.

The record of predation isn't much better for the New World vultures, except for the two most extensively studied species: the Black Vulture and the Turkey Vulture. Fortuitously, these two species are very different in their predatory habits - Black Vultures often kill live prey, Turkey Vultures rarely do - and so they present an ideal comparison between the predatory and scavenging states of mind. Black Vultures have often been accused of attacking livestock, as seen [in Chapter 8](#). Although livestock are undoubtedly easier to find and kill than most wild animals, the vultures didn't make the jump to attacking piglets and calves from nowhere - they attack wild animals, too. In October 1936, while banding Black Vultures on Avery Island in Louisiana, E. A. McIllhenny noticed a "three-quarters-grown skunk" crossing a field. After being banded and released, a yearling Vulture flew over

to the skunk and landed near it. The skunk immediately stopped walking and raised its tail in a threat display. The yearling was soon joined by other Vultures; when six to eight of them had gathered, one attacked the skunk from the side. The skunk tried to defend itself by discharging its musk; but this defensive action seemed only to spur the Vultures on, as they immediately attacked it en masse. As they did so, other Black Vultures that were circling above the meadow or perched in nearby trees rushed to join the attackers, until there were at least 25 of them surrounding the skunk. "With much flapping and croaking," the Vultures struck the skunk with their bills until it was dead, and then ate it. McIlhenny saw a very similar attack almost two years later, this time upon a fully grown skunk. He arrived after the attack had already started; as he walked near where the crowd of Black Vultures had gathered, they hopped away, revealing a badly mutilated skunk "with most of the hair torn from it, both eyes pecked out, and a number of fresh wounds through its skin." As soon as McIlhenny left, the Vultures immediately piled onto the skunk, tearing it to pieces and devouring it within a few minutes.

Later that same month, McIlhenny witnessed an even quicker and more ferocious attack, this time on a pair of fully grown Opossums. A single Black Vulture dropped from the air and alighted near the marsupials as they were trundling along a Cattle trail. It was "almost at once joined by many others that dropped down from the sky with almost unbelievable swiftness," until there were between 75 and 100 Vultures following the Opossums. One of the Opossums was then suddenly attacked by three or four Vultures; then, said McIlhenny, "In less time than I can write it, both opossums were covered with a swarm of hissing, flapping birds, and within fifteen minutes there was nothing left of them but the larger bones and the hides, and these were stripped of every vestige of flesh."<sup>[37]</sup>

These attacks don't even remotely resemble the attacks of true birds of prey, such as the Lappet-faced Vultures' attacks on Flamingos. Rather, the predatory tactics of the Black Vultures resemble those of pack-hunting mammals, especially members of the dog family like Wolves and Dholes. Compared to cats, dogs are at a disadvantage in that they lack flexible wrists or retractable claws to grip and immobilize their prey; and compared to true raptors, the Black Vultures are at a disadvantage without any prehensile feet or curved talons with which to grasp their prey and pin it down with a minimal chance of it fighting back. Black Vultures and dogs alike make up for their physical disadvantages by attacking in groups, minimizing the chance of escape for their prey. Summarizing the available descriptions of Black Vulture attacks, H. I. Fisher wrote that:

The vultures surround the animal, hook their sharp bills into the skin in various places and pull backward strongly. The prey is literally torn apart. If the carcass needs further division the vulture usually hops up on it and holds it with the weight of the body; the bill is hooked into the flesh almost between the feet. Then with strong rapid jerks, in which the muscles of the neck, back and legs participate, a chunk is torn off. Occasionally the wings are flapped to give added backward force.<sup>[38]</sup>

Except for the flapping of wings, this sounds remarkably similar to the killing techniques practiced by pack-hunting canines. From a human point of view, such tactics also have the unpleasant effect that the prey is essentially dismembered and eaten while still alive, whereas an animal killed by a true raptor or cat would be dead well before consumption commenced. That would make the Black Vultures and dogs seem more "cruel" in the eyes of some; but as trauma this severe causes nerve-paralyzing shock to set in almost immediately, there's no reason to think that an animal killed by Black Vultures or dogs really suffers any more than one killed by raptors or cats.

When observations like McIlhenny's are coupled with stories like that told by John James Audubon of a vulture abruptly breaking off a search for carrion in order to kill a snake,<sup>[39]</sup> it's obvious that for the Black Vulture, there's no great difficulty in leaping from a scavenging to a predatory state

of mind. The most frequent scavenging companions and competitors of Black Vultures seem to have much more trouble in shifting from finding the dead to killing the living. When Turkey Vultures do attack live prey, it's usually immobile or incapacitated in some way, as is demonstrated by a remarkable incident witnessed by Ben and Charlotte Glading in the walk-through bird exhibit of the Arizona-Sonora Desert Museum in September 1968. They had just entered the first pen of the exhibit, which contained Turkey Vultures as well as several other species of birds, when they noticed that a fight was going on between two of the Curve-billed Thrashers (a species of mockingbird native to the southwestern US). The struggle was over quickly enough; the victor left, and the defeated bird was left laying exhausted at the edge of a water pool, but its troubles were just beginning. Very shortly after the fight, wrote the Gladings, "an adult Turkey Vulture approached the beaten thrasher and eyed it." The Thrasher promptly attempted to flee into a cactus bush located about a yard from the pool, but the Vulture followed it, reached into the bush, and grabbed the Thrasher's tail with its bill. The Thrasher quickly pulled free and climbed deeper into the cactus's protective thorns; but the Vulture reached for it again, pulled it out, and carried the smaller bird several feet away.

Then - this is where the Vulture's state of mind must be called into question - it put the Thrasher down and "studied it." The Thrasher was motionless for a few seconds (playing dead, perhaps), then it abruptly "scolded and pecked" at the Vulture and fled back to the same bush. Again pulled from its refuge by the Vulture, the Thrasher was carried to the same spot where it had first been put down, then was picked up by the head and carried farther away. It was placed on the ground, then the Vulture held the Thrasher down with its foot - the Thrasher was beginning to call in panic at this point - and "used its bill somewhere about the thrasher's head," as the small bird's cries became louder. The Vulture at last decided to end the encounter; and, with the Thrasher still calling loudly, it first pulled off one of the Thrasher's wings, then its head, killing it. The Vulture concluded the encounter by eating its victim, plucking some of its feathers and pulling its body apart in the process. In the words of the Gladings, "While this whole action was in rather slow motion, the enthusiasm of the turkey vulture seemed to build up as the 'chase' went on. At first its actions were slow and tentative. Toward the end they were more purposeful and rapid." They were unable to determine whether the doomed Thrasher had been injured or incapacitated before the Vulture attacked it, but they did note that, although other Turkey Vultures in the pen closely observed the encounter, none of them took part in the attack while the Thrasher was alive; the other Vultures approached only after the predatory Vulture had begun to feed on its dead prey.<sup>[40]</sup>

The behavior of the Turkey Vultures during this incident stands in stark contrast to that of Black Vultures in predatory situations. There is none of the boldness, decisiveness, and clear intent to kill that is seen in Black Vultures as they go after prey; quite the contrary. It seems as though the Turkey Vulture at first didn't recognize ideal prey when it saw it; and then, in attempting to kill the prey, simply didn't know how to go about it, although it soon discovered that its sharp, hooked bill could rend living flesh just as well as that of the dead. (In contrast, observers have likened the calm, methodical approach of Turkey Vultures in devouring dead carcasses to the actions of "a skilled workman.")<sup>[41]</sup> It is entirely possible that this Turkey Vultures had never attempted to kill prey before, and had never even experienced a situation in which it *could* kill prey. Yet it did succeed, in the end; and this exposes the trouble with describing Turkey Vultures, or any vultures, as "obligate scavengers" that are physically and psychologically incapable of killing prey. They may be highly adapted for scavenging, their searching images may consist almost entirely of carrion, and they may have extreme difficulty in switching from a scavenging to a predatory state of mind; but, in the right circumstances, they can still kill.



Reliable observations are hard to come by, but it is widely believed and scientifically accepted that even vultures like griffons, which probably never hunt mobile wild prey, will occasionally attack animals that are immobile and unable to defend themselves. Is this true predation, in the sense that the birds recognize that their quarry is alive and are attempting to kill it; or is it a case of vultures misjudging the lifelessness of a carcass? As seen in the proceeding chapters, there are countless stories around the world of people playing dead in order to successfully attract vultures; so many, from such a wealth of widely scattered cultures, that it's difficult to believe that such tales didn't have some foundation in fact. But considering the care and caution exhibited by vultures in approaching carcasses - behavior that is so often interpreted as timidity or cowardice - it isn't likely that they could mistake a living animal, no matter how injured, incapacitated, and immobile, for a dead one. It goes without saying that a person would have to be a true master of immobility and breath control to have even a reasonable chance of fooling the birds, because vultures are unquestionably very skilled at discriminating between the living and the dead. That seemingly simple skill is not easily acquired by humans; it's often very difficult to determine if a dying person is genuinely dead, as their breathing may temporarily stop, their circulation may slow to the point where a pulse is undetectable, and their body may even begin to grow cold; yet the person might still be alive.<sup>[42]</sup> Over the centuries, enterprising physicians have proposed dozens of different procedures for determining if an intact body is alive or not; however, aside from actually destroying the body, the *only* one of these that has proven to be entirely reliable is to wait several days and see if the body begins to putrefy.<sup>[43]</sup> The vultures, needless to say, knew that already.

The Zoroastrian Parsis of India, who ought to know as much about the subject as anyone, firmly believe that vultures are so well able to discriminate between dead and living that they will never eat living persons who are mistaken for dead and placed in their *dokhmas*. Much as persons in Western societies may occasionally be buried alive, from time to time a Parsi who lives, yet who exhibits no discernible signs of life, will be given up for dead, mourned over, and (if the ritual Dog brought to look at the body doesn't howl with terror upon seeing a person in suspended animation)<sup>[44]</sup> taken to one of the Towers of Silence for the birds to devour. The vultures will not touch them, claim the Parsis, and a strategically placed chain allows them to pull themselves to the parapet of the tower and call for help once they've regained consciousness. However, observers of the Parsis of Mumbai have said that anyone who actually returns from a *dokhma* alive is ostracized by Parsi society and condemned to a social death, so such a person might soon have cause to curse the vultures' powers of discrimination.<sup>[45]</sup>

Writing from the Byzantine Empire, the historian Agathias claimed that this Zoroastrian ostracism of the "living dead" existed in his time, during the 6<sup>th</sup> century CE, but that the vultures were actually far less discriminate than the Zoroastrian Persians liked to believe:

If any of the [Persian] rank and file happen to be afflicted with some greivous ailment when out on active service somewhere, they are taken away while still alive and lucid. When a man is subjected to this type of exposure a piece of bread, some water and a stick are set down beside him. As long as he is able to eat and still has some small residue of strength left him he wards off attacking animals with the stick and scares away the prospective feasters. But if without actually destroying him the illness reduces him to a state where he can no longer move his arms, then the animals devour the poor wretch when he is not properly dead and is only just beginning to breath his last, thus robbing him in advance of any possible hope of recovery. There have in fact been many instances of people who recovered and returned home. . . . If anyone returns in these circumstances everybody shuns him and treats him as a pariah since his is regarded as polluted and still belonging to the netherworld. Nor is he permitted to resume his place in

society until the stain of pollution incurred by the imminence of death has been purged by the Magi in order that he may, as it were, embrace life anew.<sup>[46]</sup> [Translated by Joseph D. Frendo]

Agathias' claims should probably be taken with a grain of salt, since as an official historian of Persia's archenemy he was hardly an impartial observer of the Persians and their beliefs (this excerpt was immediately followed by a lengthy diatribe and ridicule of the Persians' sexual habits.) Nevertheless, the thought of being attacked by vultures while helpless to do anything about it was and remains some powerfully terrifying imagery for people familiar with the carrion birds. In the 19<sup>th</sup> century, the British explorer E. H. Palmer found that among the Bedouin Arabs of the Sinai Peninsula, there was a very specific and explicit belief about what would happen to those people who lived to see the Day of Judgment:

At the end of the world . . . there will be a general resurrection, and on that day the world will melt. Then those who have done good and those who have done evil shall rise together from their tombs; the good shall rise with their hands above their heads, and the wicked with their arms close down by their sides. Then there shall come a dreadful flight of vultures to assail them, and the good, having their hands free, shall repel their attacks and receive no harm, but the wicked will remain helpless until their eyes are all pecked out.<sup>[47]</sup>

Such attacks are also feared in the New World, home to what is arguably the most aggressive and voracious of vultures, the Black Vulture. Large groups of Black Vultures have been seen attacking animals the size of adult Cattle, which are easily three or four hundred times heavier than a single Vulture; and considering their behavior, there's no reason to think that these birds would hesitate to attack when presented with living prey of any size that was immobile and defenseless. We saw [in Chapter 6](#) that there's substantial archaeological evidence that the Moche people of prehistoric South America executed live prisoners by presenting them to packs of Black Vultures; and [in Chapter 8](#), we saw that slaveholders in 19<sup>th</sup>-century South Carolina did much the same thing. The vultures in these situations were provided with immobile, helpless humans in ritualized and tightly controlled situations, thus enabling the birds to throw caution to the wind. The spark of life may be far more difficult to discern in meals provided by nature, and there are some eyewitness accounts of vultures attempting to feed on "carcasses" that turned out to be very much alive. When the animals in question are large, that strategy can be quite a gamble. There are a number of anecdotes (particularly from India, for some reason) of griffons that were discovered either dead, or alive with their necks or heads helplessly entrapped, in the mouths of deceased large mammals like Cattle<sup>[48]</sup> - though in at least one case, the sight of one of their kind so entrapped seemed to prevent other vultures from approaching the carcass.<sup>[49]</sup> These discoveries would seem to imply that the vultures involved sorely misjudged the lifelessness of their intended prey, with potentially fatal consequences. Unless these vultures were starving and driven to recklessness by panic hunger, it's difficult to imagine such mistakes being made by experienced adult birds, who had dealt with hundreds of carcasses in their lives. But just as young, inexperienced predators often attack prey too large, tough, or otherwise unsuitable for them to handle, hungry but inexperienced young vultures unskilled in the fine art of distinguishing between life and death might throw caution to the wind, and attempt to feed on animals that aren't quite dead.

It no longer seems quite so strange that vultures should be cautious while approaching large carcasses, or that many folktales around the world attempted to explain this caution by explaining that the vultures had originally lost their head feathers after an attack by an animal that wasn't quite dead. An animal many times the weight of a vulture is potentially dangerous if it's still alive,

regardless of its physical condition. But perhaps the birds also harbor a less evident dread, one that is also shared by humans, and is one of the most universal and deep-seated fears: the idea of the dead coming back to life. On a strictly logical level, the reasoning behind this fear is simple enough; if a body appears to be dead, and is approached with the belief that it is dead, then the unexpected appearance of any sign of life shocks and confuses the viewer. This is why the funeral rituals of so many societies around the world take pains to ensure that corpses, once disposed of, cannot rise and walk again. Other animals, even vultures, may harbor this fear, and not without just cause. Many readers are likely familiar with the old fable of the Fox and the Crows, in which a clever Fox plays dead in order to attract the carrion-eating birds. When the Crows arrive and approach the Fox, it jumps up and manages to catch and kill one or two of them, making a meal of its would-be undertakers. Remarkably, this fable has been shown to be based on fact; some Red Foxes do play dead in order to attract Crows, which can then be killed and eaten, and Gray Wolves have been reported to do the same with Ravens. In his book *The Voice of the Coyote*, J. Frank Dobie recounted a fable-like tale told to him by a priest in the Mexican state of Chihuahua. This priest claimed to see a prowling Coyote “suddenly stop, fall to the earth and stretch out like a dead animal.” A short while later, a “buzzard” (a Turkey or Black Vulture) flew overhead, then landed near the Coyote – at which point the Coyote sprang to its feet, killed the vulture with a bite to the neck, and ate it. It’s an interesting story; although, if true, it involved an exceptionally hasty and incautious vulture.<sup>[50]</sup> The possibility of such a thing happening helps to explain why vultures appear at times to look for tell-tale signs of death, like spattered blood, rather than for intact bodies which may or may not be dead.

In contrast to primarily predatory animals, which may require intact, moving prey to trigger both predatory behavior and feeding behavior, vultures seem able to recognize carrion in most any form. Most of the time, the flesh in question would be either encased in a more-or-less intact hide, or, if the carcass has already been found and dismembered, strewn across the ground or held in the grip of other scavengers (from whom it can be stolen). There are still a few situations, such as the Tibetan *ja-gor* funerals mentioned [in Chapter 4](#) and the blowings from guns mentioned [in Chapter 10](#), in which vultures may come across flesh that is not only already dissected, but that is actually airborne. Despite the complete dissimilarity of velocity and position between this flesh and that which the birds normally eat, they immediately recognize it as food, and will catch and devour the carrion while it's *flying through the air*. Depending on your point of view, this behavior represents either a remarkable example of adaptability, or an equally remarkable demonstration of the overpowering compulsion for animals to obey their searching images in any and every situation. The attraction to raw flesh could also provide a clue towards solving the mystery of why some vultures, particularly young ones, tend to frequent the kills of large mammalian carnivores, despite both the dangers of attending large predators and the stinginess of the bigger animals' eating habits. Young, inexperienced vultures that haven't yet mastered the skill of determining death would find predator kills that are dismembered, dissected, and indubitably dead relatively easy to deal with.

The predators themselves are another matter. As iterated [in Chapter 2](#), scavenging from a large carcass can be a very dangerous experience, due to the unusual amount and variety of competition that takes place among scavengers trying to feed from it, and it is especially hazardous for birds. Though there are reports of avian scavengers seriously injuring or (rarely) even killing each other in both intra and interspecific disputes over carcasses, such incidents seem to be quite atypical; certainly the participants of most vulture-vs.-vulture fights lose nothing more than a few feathers.<sup>[51]</sup> While studying the interactions of Andean Condors with other scavengers in Peru, the biologist Jerry McGahan noted that despite their relatively minuscule size, “Black vultures seemed to have little fear



of the condors and fed in close proximity with them,” and often engaged in petty harassment of their giant cousins. The Condors frequently snapped at the Black Vultures in response, but these bites appeared to be “gentle nibbles” not intended to do harm, and he never once saw a Condor draw blood by biting a smaller vulture. As McGahan put it, the Condors “inflicted little injury on the smaller bird[s] even when there were many opportunities to do so.”<sup>[52]</sup> Compare the Condors’ benign behavior to the typical reactions of a Lion or Tiger when encountering smaller competitors at a carcass – i.e., brutal aggression with clear intent to kill or maim – and it’s obvious why terrestrial scavengers are a consistently dangerous threat to scavenging birds. For the feathered tribe, even attempting to feed at a carcass alongside large carnivores can have fatal consequences; in that situation, vultures have been killed by Lions and Tigers, Golden Eagles and Ravens have been killed by Wolves,<sup>[53]</sup> and there’s even a report of a Brahminy Kite that met its doom in the jaws of a Komodo Dragon.<sup>[54]</sup> That this kind of thing doesn’t happen *more* often suggests that the wariness displayed by avian scavengers while grounded usually works; it’s a pattern of behavior that is well worth passing from one generation to another.

A healthy respect for big carnivores can also explain why vultures and other avian scavengers tend to land at carcasses in reverse size order; that is, the smallest birds land first, and the largest birds land last, even though the larger birds may have been circling or perching nearby since before the smaller birds arrived. Superficially, this behavior seems absurd, because the larger birds are of course stronger, more formidable, and better able to assert a place at a carcass than the smaller birds, so why should they let their lesser brethren take first crack at a carcass? The trouble is that even the largest or most numerous vultures can fight off terrestrial scavengers only to the size of jackals or feral Dogs (or Cheetahs), and even those relatively small carnivores are often able to dominate all scavenging birds at a carcass. Any bigger carnivores are beyond the power of any vultures to repel – and, it should be emphasized, bigger carnivores were far, far more abundant throughout the world for the vast majority of the vultures’ evolutionary history. But small vultures like the Black, Egyptian, and Hooded (as well as kites and crows) can, by dint of their quick reactions and innate agility, boldly approach carcasses that may well have big carnivores lurking nearby. The smaller birds act as test cases for the larger birds; if they aren’t attacked by any big carnivores, then the larger birds know that it’s safe to land. And, since the larger birds can easily dominate the smaller ones, and can go for longer periods without food, they have no reason to hasten to a carcass that will take the smaller birds days to consume; it’s almost always better to be patient than to risk unnecessary injury or death.

This simultaneous fear of and respect for the large carnivores is but one of the many physical and mental traits that vultures share with humans. A number of thinkers have noted that out of all classes of animals, the Aves, the birds, tend to be looked upon with the greatest benevolence, even more so than our fellow Mammalia. Aside from the inherent colorfulness and attractiveness of most birds, this attraction can be attributed to the similar systems of perception found in birds and humans; both perceive the world primarily through the sense of vision, less through sound, and little or not at all through smell, unlike most mammals. Birds are also bipedal like us, making them relatively easy to anthropomorphize. The bipedal mode of locomotion is shared by few other animals, and virtually no other placental mammals; the trait is so distinctively avian that some biologists, following Plato, have taken to colloquially calling humans “featherless bipeds.” Birds are of overwhelmingly diurnal habits, like ourselves but unlike the primarily nocturnal mammals; and, unlike many large mammals, carnivorous or otherwise, birds aren’t usually considered to be potentially dangerous. The birds look even more favorable when compared to the remainder of the animal kingdom: unlike some large reptilian and selachian carnivores, they count (almost) none among them that prey on humans;

unlike many snakes, spiders, jellyfish, and bony fishes, they cannot actively or passively kill humans with poison; and unlike countless invertebrates of all shapes and sizes, they don't inspire feelings of squeamishness or revulsion. A bird seen in flight most often inspires emotions of admiration, bliss, or frank indifference, not fear or concern.

It's all too easy to imagine that birds, soaring in their ethereal realm, are somehow exempt from all of the difficulties and limitations that hinder us on the ground. They look so carefree, with their unencumbered and unobstructed movements seeming so effortless, while we earth-huggers slog wearily through our lives. As Saint Francis preached in his famed Sermon to the Birds, "You ought to praise and love your Creator very much. . . . He has made you the noblest of all his creatures; He permits you to live in the pure air; you have neither to sow nor to reap, and yet He takes care of you, watches over you and guides you."<sup>[55]</sup> The American astronomer Simon Newcomb viewed birds and their flight with a rather more jealous eye:

[T]he rest of the animal creation is so far inferior to us in every point that the best thing it can do is to become completely subservient to our needs. . . . And yet here is an insignificant little bird, from whose mind, if mind it has, all conceptions of natural law are excluded, applying the rules of aerodynamics in an application of mechanical force to an end we have never been able to reach, and this with entire ease and absence of consciousness that it is doing an extraordinary thing.<sup>[56]</sup>

And the paired driving forces of the "extraordinary thing" accomplished by the birds are greatly envied by humans, to an extent that makes one wonder just which bipeds have the better lot. It's no wonder that any birds who depart from this lovely idealization of their structure and way of life are looked at askance.

In cultural terms, birds that are flightless are usually considered to be distinct from their flying brethren; sometimes they aren't even thought of as birds at all, but as some kind of aberrant mammal or reptile. Although all vultures fly very well, they are unusual among birds in the amount of time that they spend on the ground. Since the carrion on which they feed is often too large, heavy, or unwieldy to carry away, vultures usually must eat it where it lies. The necessity of feeding on the ground, as opposed to upon a secure perch in a tree or on a cliff, has led vulturine evolution in different directions from that of ordinary birds; one might say that it has been redirected groundward. A number of trademark vulture traits - short, blunt talons, short tails, powerful legs, big feet, and large body size - make the birds more comfortable and agile on the ground. But the great size and weight of many vultures comes at the price of aerial maneuverability, which explains why large vultures may be mobbed in the air by smaller birds that wouldn't dare to approach them on the ground. Some vultures, such as the griffons, are so heavy and cumbersome in flight that they seem to be incapable of engaging in the aerial "dogfighting" that is common among lighter birds of prey. The courtship displays of Old World vultures, often consisting of nothing more vigorous than soaring in tandem with a partner, are mostly sedate and low-key compared to the aerobic feats and jugglery performed by other raptors when trying to woo mates. New World vultures have gone even further, and taken most of their courtship displays out of the air entirely; instead, their males perform "dances" on the ground in order to win mates.

For the lifestyle that the vultures lead, such adaptations offer the best of both worlds, with the aerial speed, mobility, and heightened perspective of birds; and with the grounded agility, toughness, and versatility of land animals. But for land animals that idealize birds and their flight - that is, us - such earthiness can be interpreted as a betrayal of flight, a renouncing of the heavens. When watching Eurasian Griffons in Spain, the British hunters Abel Chapman and Walter Buck found

something peculiarly impressive in the appearance of these colossal birds and in the automaton-like ease of their flight. Ponderous bodies appear suspended in mid-air without visible effort or exertion - the great square wings extended, rigid and motionless, filled with air like the wands of a wind-mill, enable them to rest on space, to soar for hours, as it were, by mere volition. . . . a striking sight it is to watch perhaps forty or fifty, as they soar and wheel in as many opposing, concentric circles, gradually focussing themselves over the point of attraction.

But they added that when the Griffons

fold their wings and gather in a seething mass around the carrion, all that was majestic and imposing disappears - as they tear open the flanks and, with spluttering growls and gurgles, and flapping of huge wings, dive their great bare necks into the innermost penetralia, the spectacle changes to the repulsive.<sup>[57]</sup>

For people who have always looked to the sky as a better place, an ethereal realm where everything is freer and more beautiful than it is down in the muck and filth that they inhabit, it isn't easy to comprehend why any denizens of the sky would choose to spend as much time down on the ground as vultures do. While other birds touch the ground only occasionally, and flit back into the air at the slightest provocation, the big, tough scavengers positively wallow upon the earth, swallowing up the spoils which would otherwise sink back into the soil. The vultures' appearance certainly doesn't help their case, as vulturine plumage is loose and coarse to begin with; and many of a vulture's feathers, particularly those of its tail, legs, and belly, become very worn through the day-to-day work of scavenging on the ground. The net result is a bird that looks as though it is in dire need of a tailor, or at least a milliner. As an Ashanti proverb puts it, "When children see an eagle bedraggled by the rain, they say it is a vulture."

In many systems of belief, flying birds were used to symbolize either the intellect or the soul, or both. A flightless bird, or a flighted bird that chose to spend much time with its feet on the ground, was apt to be characterized as an outcaste for its betrayal of these higher attributes. For such a large, powerful bird as a vulture, with such obvious mastery of flight, to spend so much time on the ground wasn't just strange; it must have conjured up thoughts of fallen angels, or of deities cast down from heaven. For some, the only explanation for such nonconformity was stupidity, which also served as a handy explanation for the popular belief that vultures would sometimes gorge on carrion to the extent that they couldn't take off, and could then be killed with comparative ease. In his work *Hayawan*, the medieval Arab writer al-Djahiz denounced vultures (as well as bustards, another type of flying bird that spends much time grounded) as awkward and stupid for just this reason,<sup>[58]</sup> and it likely also explains why the medieval German monk Albertus Magnus claimed that the ancient Romans called vultures *gradipes*, meaning "slow-footed."<sup>[59]</sup> In his *Aviarius*, Hugh of Fouillooy wrote that some people of medieval Europe knew the vulture by the same name, and he attempted to find some deeper spiritual meaning in this:

Now the vulture likes to walk upon the ground, whence by some it is called *gradipes*, because the sinner loves earthly things and longs for earthly things. When the vulture also flies into the heights, <it is> because the sinner sometimes lifts his mind to the heavens, but no one else knows why he does so. . . . Note also that the vulture . . . is named from its slow flight. For when it takes off, it departs slowly from the earth, because a sinner either rarely or never leaves off from earthly desires. [Chapter 43, translated by Willene B. Clark]

A similar metaphysical interpretation of the carrion bird was offered by William Henry Hudson in his book *A Hind in Richmond Park*; he felt that the vulture, "in the two strangely contrasted aspects in



which he appears to us: as the loathsome feathered scavenger in the one and the sublime heavenward soarer in the other . . . might serve as an emblem of man in his double nature —the gross or earthly and the angelic.”<sup>[60]</sup> Charles Johnson Maynard took a more lyrical view of this psychovisual dichotomy in his book *The Birds of Eastern North America*:

When one sees the Red-headed [Turkey] Vultures for the first time and observes their various aerial evolutions, now sailing high in air on motionless wings or gliding rapidly along the surface of the ground . . . with the greatest ease; rising and falling with a flight so smooth that it is seldom excelled by other birds; in short, performing all their movements upon the wing with the utmost grace and elegance, I repeat, when one sees all this for the first time, he cannot help exclaiming, "What magnificent birds!" . . . [But] after becoming intimately acquainted with the birds, one cannot help regarding them as "nothing but dirty Buzzards," and no matter how elegant and varied are their gyrations, one can never look upon them with quite the same admiration as he did before witnessing their disgusting habits.<sup>[61]</sup>

The traditional West African war song “Dougá” (“The Vulture”) interprets the vulture’s dual nature rather more positively: “O Vulture of majestic flight! / Vulture of beautiful flight! / One bird, four wings. / O bird who floats in the skies / And yet can scratch the ground.”<sup>[62]</sup>

Although most vulture species do spend much time on the ground, there is surprisingly little hard evidence to suggest that vultures ever gorge until they can't fly, except perhaps when there is such a glut of food that neither the vultures nor the mammalian carnivores that they need to be wary of bother to pay attention to each other. On rare occasions, griffons have been seen near carcasses with their crops stuffed to the bursting point; the birds carried so much extra weight that they not only couldn't fly, they could barely even walk (though they were back to normal after a day of digestion).<sup>[63]</sup> Vultures that do stuff themselves to this extent were almost certainly starving until then; it hardly seems fair to call them "stupid" for making the same mistake of over-engorging that hungry humans so often make. There were frequent claims that California Condors, among the heaviest vultures, often ate so much at a sitting that they became grounded; but Carl Koford, whose experience with wild California Condors was unparalleled, never once encountered an adult Condor that was unable to fly. He believed that a grounded Condor's inability to take off was related to disease, injury, or poisoning, not to gorging.<sup>[64]</sup> It also appears that air currents are a factor, as even a vulture with an empty crop may have to struggle to get into the air if there isn't any wind. The presence or absence of updrafts may be an important consideration for the larger vultures when deciding whether or not to land at a carcass; it's a well-known oddity of the birds that they often won't touch carrion found on the floors of valleys or canyons, where there are no updrafts to help them become airborne again. The difficulty that the large vultures have in taking off from the ground is shared by many other oversized birds - anyone who thinks that a vulture's takeoff run looks clumsy should see the spectacle of an albatross attempting to leave the ground - though few birds have to deal with the problem as regularly as the vultures, and few are likely to be so conspicuous to humans when attempting to leave their earthly bounds.

Though their way of life may often be disparaged, the existence of flying animals that feed almost exclusively on the ground has been a boon to humans looking to dispose of their dead without some form of burial or cremation. Funeral rituals in which corpses are fed to vultures are often described with terms like *celestial funerals* or *sky burials*, expressions that say much about the human desires riding upon these rituals. Religious beliefs often place the abode of the dead (or at least of the “good” dead) in the sky, to which their souls ascend only *after* their bodies have been disposed of in the earth. A sky burial removes this needless and wasteful stage, and ensures that the dead will

immediately ascend into the sky with the vultures that have consumed them. The earliest known description of a Tibetan sky burial, written by the Italian friar Odoric of Pordenone in the early 14<sup>th</sup> century CE, may not be fully accurate as to the details of the ritual, but it does offer a novel interpretation of the birds where the dead were laid to rest:

[T]he priests cut the whole of the body to pieces, and when they have done so they go up again to the city with the whole company, praying for him as they go. After this the eagles and vultures come down from the mountains, and every one takes his morsel and carries it away. Then all the company shout aloud, saying, 'Behold! The man is a saint. For the angels of god come and carry him to paradise.' And in this way the son [of the deceased] deems himself to be honored in no small degree, seeing that his father is borne off in this creditable manner by the angels.<sup>[65]</sup>

In that sense, the practice of exposure can be thought of as an attempt to escape from the earthly fate that awaits the rest of humanity, not unlike the recently devised practice of rocketing a deceased person's ashes into orbit; and also providing a similarly interesting exhibition for onlookers. No other funeral ritual can begin to compare to the spectacle of giant birds plummeting out of the clear blue sky in great numbers, devouring a body in a cacophonous swirl of feathers and dust, and then abruptly disappearing again to parts unknown. We should hesitate to ascribe the origins of such ancient and venerated traditions to a mere desire for spectacle (and the Parsis, for instance, have essentially hidden from view all stages of the ritual except for the ascent and descent of the vultures); but spectacle is still important in death, as it is in life.

Whatever assistance vultures were thought to be able to render to humans after death, it seems to be more popular to focus on their potential for portending death; a potential that does have some basis in reality. Through instinct and learning, vultures know well how to find death's freshest victims, and how to benefit from the grim reaper's work when they find it. They *must* know this, in order to survive; a scavenger that arrives too long after the corpse has cooled is likely to end up disappointed and hungry. Such are the vultures' powers of prognostication that even healthy people in the prime of life, who have no particular reason to expect imminent death, frequently feel unsettled or even fearful when the carrion birds appear overhead. Humanity has always looked to the sky and the objects in it for guidance; when looking to vultures, the great advantage was that the birds could themselves see, and could in some way communicate their findings to whoever knew how to listen. It was easily understood that just as a man standing on a hilltop could see farther than a man standing on a plain, so a flying bird could see farther still from its high vantage point. The human understanding of distance and time is and probably always has been intertwined; an event perceived to be far off in distance is also likely to be far off in time, at least in the age prior to instantaneous global communications. A soaring vulture could see a carcass that was beyond human sight; in following that vulture, humans were making a leap of faith, trusting that the vulture was leading them ahead to a better time when they would have meat in their bellies. Similarly, a vulture could "see" approaching death, literally or metaphorically, and could communicate that knowledge of impending mortality by its very presence.

One might think that pre-modern people who held these beliefs would fear the sight of vultures far more than would anyone living in a modern society. After all, the pre-moderns had so many potential causes of death to fear, and so few ways to escape them. But the cultures that have viewed vultures favorably tend also to contain a degree of fatalism; for them, death is something to be accepted and quietly prepared for, not pointlessly fought against with tremendous expenditures of time, money and effort. From this approach, vultures are to be accepted, not despised, whatever they

may portend. If the ominous birds represent the will of the gods, then any attempt to avoid or attack them would be a circumvention of divine power, and an unacceptable exertion of the will of man. As medical technology has improved, and as mortal threats like pestilence, large predators, and starvation are reduced in scope or eliminated entirely, death has become less and less familiar to modern people, and all the more terrifying because of it. Most will do literally anything to avoid death, even if the swing of the reaper's scythe is staved off only temporarily; furthermore, death on a personal level is simply not joked about. It remains a last taboo in modern societies where little else is sacred. The existence of vultures, which depend on death for their very existence, requires no comment for those who comprehend the natural cycle of life and death; but it is inherently horrifying for people who live in permanent denial of their own mortality.

This curious pattern of denial and fear can probably be traced back to the advent of our species. Once modern *Homo sapiens* evolved from its less brainy ancestors, there was no creature on earth that man couldn't match. The world's big cats, bears, crocodiles, and sharks undoubtedly still killed humans; but, with the advantages of teamwork, language, and weaponry, humans could kill them in return. Though they were still threats, the great predators were not insurmountable; their depredations didn't have to be suffered helplessly. And since predators also have brains, and can learn from their experiences, many of them would decide after a nasty encounter or two that humans were better left alone. Vultures and other carrion-eaters were another story. They were harbingers of something greater, more sinister, and more callously brainless than the mere threat of predation. Earthquakes, volcanic eruptions, typhoons, tsunamis, epidemics of contagious and lethal diseases, even war; what good were intellect and brute strength against such foes? A catastrophe cannot be defeated; it can only be survived. A predator with clear murderous intent is easily identified as a threat of imminent death, and can be defended against; there is no such certainty with vultures, which are almost cruelly vague and ambiguous when predicting death. Small wonder that some people in Africa believe that vultures are somehow able to cause catastrophes for their own profit, and are willing to offer animal sacrifices to the vultures to prevent them from doing so.

The insidious nature of the catastrophes that so often preceded the arrival of vultures ensured that, for many people, the birds would be irrevocably linked with the feminine aspect of the human psyche, which emphasizes subtlety and passivity. Among humans, defense against the more corporeal threats to life and limb (or the mounting of offenses against same) is traditionally the province of the male. Disease, disaster, and that second-most-effeminate of deaths, old age,<sup>[66]</sup> could befall anyone, regardless of active defenses; male and female were equally helpless in the face of them. And yet, the masculine province of mortality wasn't forsaken by the birds. Active participants in warfare are overwhelmingly male, and war is of course a vital element of the vultures' cultural makeup in most every society that shares a part of the world with them. Similarly, most murderers are male, and one couldn't even venture to estimate how many murder victims have been quietly and stealthily disposed of by the birds. Nor can anyone say for certain how many manly explorers of strange and distant lands have ended their journeys by disappearing down a vulture's gullet; nor how many men, women, and children slain by humanity's ancient enemies, the great predators, have been polished off by attendant scavengers once the carnivores abandoned their kills. And, like many males, vultures clearly place great stock in the power of intimidation.

The skyward appearance of any large, flying animal, from a swan to a flying fox, elicits awe and wonder from those who watch it from below. But vultures, almost uniquely, can elicit dread as well. It's no exaggeration to say that much of humanity's relationship with vultures is governed by fear, because vultures are among the very few birds that can actually intimidate humans. This



intimidation is almost solely visual; for despite their great size, vultures are very silent, especially in flight, and usually the only aural indications of their presence are the swishes and whistles of their massive wings as they slice through the air. (Though these sounds can themselves be impressive; the noises made by plummeting Black Vultures have been likened to "diving wire-strutted biplanes of the First World War."<sup>[67]</sup>) The naturalist William L. Finley learned as much while studying a family of California Condors in the wild; for although he developed a genuine attachment to the birds, he also noted that:

There was something ominous about the condors and their nest cave. Never a sound came from the birds: they came and went like great black shadows. One minute you might see a mere speck in the clouds, and a few moments later this creature with a wing-spread of ten feet [3 m], would skim past only a few yards above your head. There was hardly a swish of the wings to tell of his presence.<sup>[68]</sup>

Vultures can also gather in vast numbers in a very short period of time - as Aristotle said in *History of Animals*, "all of a sudden great numbers of them will appear without any one being able to tell from whence they come"<sup>[69]</sup> - an activity that can be both impressive and extremely unnerving to anyone who witnesses it. This ability to accrue at a moment's notice has been enshrined in the human mind as a distinctively vulturine power; no other behavior of the birds has so often been ascribed to supernatural causes, or to the vultures making their home in, as Aristotle put it, "some distant and elevated land," or to some occult sense possessed by the birds that was destined to remain forever mysterious to humans. Even the true explanations for this ability to amass quickly from out of nowhere (namely, the incredible eyesight of vultures, their alertness to each other's movements, and their speed in the air) inevitably result in awe rather than tacit understanding. Small animals like mice or locusts that are ordinarily thought of as innocuous can quickly become ominous when they gather in vast numbers. Birds, too, have the ability to use the power of the mob to intimidate humans, a capability that Alfred Hitchcock so memorably exploited in his film *The Birds*. Due to their great size, their fearsome appearance, and their deathly reputation, vultures can capitalize on the power of the mob to a degree that no other birds can; and due to their adaptability and general lack of territoriality, vultures are often more numerous in a small area than any predatory raptors could be. It has been well established from field observations that gatherings of vultures in the hundreds can dominate small carnivores like jackals and feral Dogs.<sup>[70]</sup> It's therefore no unreasonable assumption that even more vultures - say, a thousand - could give still larger scavengers second thoughts about trying to appropriate a carcass.

Opportunities to witness vulture gatherings of such magnitude are almost nonexistent these days; but the few observations of them that do exist suggest that they can intimidate humans, and that the vultures that comprise them are well aware of their power. In his book *Wild Eden*, the African safari guide Joseph James Shomon described how he and his party watched a herd of migrating Wildebeest cross the large Mara River in Kenya. As is typical for such migratory crossings, many of the Wildebeest drowned in the process:

So many dead animals rafted downriver that one could have ridden on them. . . . Then came another incredible sight. On both riverbanks we spotted huge concentrations of vultures. They had assembled in astonishing numbers. . . . The magnitude of this bird aggregation was beyond description. No one would dream so many scavengers could assemble in one place at one time. We estimated the flock at about five thousand. It looked as if all the griffin vultures in Kenya had come to the Mara for a grand feast.

The safari party left their vehicle to take photos of the scavenger spectacle, “but the advancing, hissing thousands of vultures appeared so menacing that we decided to return to the Land Rover.”<sup>[71]</sup> One could hardly blame them for their retreat; the prospect of being faced with 75,000 pounds (34,000 kg) of hyper-aggressive vultures would be quite enough to make anyone err on the side of caution. Considering that the world in which humanity originally evolved held even more tremendous numbers of large animals than are today found in Africa, with correspondingly large numbers of vultures, such enormous gatherings must have been no uncommon sight right up until the end of the Pleistocene; and even after that in some areas. This raises the interesting possibility that vulture aggregations may be encoded into our genes, however hazily, as sights that should be respected and feared.

Whether they gather in massive, terrifying mobs or innocuous gatherings of only a few birds, sociality is one of the defining features of vultures. Some species, like the Black Vulture and most of the griffons, are among the most social of all large birds, routinely gathering in the hundreds at roosts and carcasses. Other vultures, especially the Old World dark vultures and the Lammergeier, are generally considered to be solitary in their habits; but their behavior suggests that even these comparatively asocial species enjoy the company of their own kind. During the project to reintroduce Monk Vultures to the Mediterranean island of Mallorca in the late 1980s, Monk nestlings were first placed in the wild when aged between two and three months, allowing them at least three weeks to become used to their surroundings before fledging and exploring them on the wing. Rather than leave the young Vultures in solitude, the project workers elected to place at least two nestlings in each artificial nest, in hopes that contact between the birds would make up for the lack of parental attention. Unfortunately, the schedule initially went awry; and as described by the biologist Evelyn Tewes,

the first nestling was left alone for ten days, because the second did not arrive as planned. Its loneliness was evident from its passivity and finally it started to eat less. The moment we obtained a companion bird for it, its behaviour changed completely, it became very active and ate well again. There were up to six nestlings together on the nest platform. Normally they lived together quite peacefully, only competing regularly for the best piece of food. In their social relations different degrees of sympathy could be recognized between individuals, and in one case antipathy.<sup>[72]</sup>

Keep in mind that the Monk is supposed to be one of the least social vultures, that Monk Vulture pairs lay only a single egg, and that Monk Vultures ordinarily hatch, grow, and fledge with no company but that of their parents. Yet in this artificial situation six unrelated individuals were able to live amicably in one small space, apparently with only one case of mutual dislike between them.

In contrast to the Monk, the Black Vulture of the New World is well known as a social bird. Behavioral studies indicate that it has the most highly developed social structure of all of the vultures, as young birds and their parents form "packs" that assist and defend each other;<sup>[73]</sup> there have even been suggestions that roosts of hundreds of Black Vultures may consist of "a few large extended family units or clans."<sup>[74]</sup> Considering the incredible success that this species has achieved in the past 10,000 years, its sociality has certainly served it well; but for the Black Vulture, as for other animals in which social behavior has developed to a high level, sociality seems to be less of a choice than a necessity. Black Vultures are so dependent on their kin that they cannot scavenge effectively without a mutually supportive group, and therefore can live, at best, a very marginal existence without one. In one experimental study, Black Vultures were hatched and reared in captivity, then released into the wild in groups that had grown up together. These Vultures able to compete with their wild

counterparts on a more-or-less equal playing field. But Blacks that were either reared and released singly, or released in groups that had only a brief period to get to know each other, fared much more poorly. With little or no support from their fellows, these birds faced the threat of constant attack at carcasses from wild Black Vultures; and, being easily dominated, they were able to get little food. One of these unfortunates was attacked by a group of wild Vultures with such ferocity that it later died of its injuries;<sup>[75]</sup> an unthinkable occurrence for a member of a properly functioning pack that would have had other birds watching its back, so to speak.<sup>[76]</sup>

Group living also offers substantial advantages when dealing with other species. Turkey Vultures can and often do successfully face down Black Vultures in one-on-one confrontations, but Black Vultures are always dominant if they compete with Turkey Vultures in groups. Black Vulture packs are also dominant over another similar-sized scavenger, a raptor known as the Crested Caracara, although the Caracaras are usually dominant over single Black Vultures.<sup>[77]</sup> Although the Old World griffons lack the Black Vulture's coordinated pack structure (as far as we know), they too can put their numbers to good use in dealing with competitors like jackals or larger vultures. The logic is simple: an aggregation of many vultures can crowd most other scavengers off of a carcass, even if those other scavengers could easily dominate a single vulture. Although the vultures comprising the aggregation must then deal with many competitors for the food, they need only compete *with their own kind*, dealing with predictable behavior and using established rules of engagement, rather than struggle with alien entities that are unpredictable and possibly dangerous.

Although the basic propensities that propel social behavior are probably ingrained in all vultures, much of that behavior is learned, rather than instinctive. Persons involved in vulture reintroduction programs have long known that just about all vultures have better rates of survival if they are released into the wild in groups, rather than singly; and still higher chances if they are released together with older birds that already know how to find food and deal with other scavengers.<sup>[78]</sup> This has the coincidental but welcome side effect of making reintroduced vultures easier to care for than solitary birds of prey, which usually must face the travails of the wild with no assistance but that of their own instincts. Whereas most young raptors are independent of their parents a month or two after first leaving the nest, young vultures require parental guidance for a long time after fledging.<sup>[79]</sup> Michael Wallace and Stanley Temple commented that compared to more strictly predatory birds,

avian scavengers develop the complex behavioral patterns necessary for their survival more slowly. They have an innate curiosity about other individuals, and begin to follow other scavengers soon after fledging. Scavengers have a heightened capacity for associative learning and a strong sense of social facilitation. By following other individuals, usually their parents, young scavengers are gradually exposed to the methods of searching for carrion, which are usually specific to the resource availability and distribution patterns of their area.<sup>[80]</sup>

For most vultures, it takes months to learn how to forage for carcasses effectively enough to have a reasonable chance at survival; even young Black Vultures, which have the advantage of being part of a team, may be entirely dependent on their parents for more than five months after first taking flight.<sup>[81]</sup>

The unique needs of young vultures mean that in the course of the many vulture reintroduction programs that have taken place in the last 40 years, personnel have had to figure out management techniques that are often very different from those used for more typical birds of prey. Compared to programs involving more predatory and solitary raptors, which need to be kept



separated, must be cared for individually, and have low expectations of survival upon release, the releases of even young, inexperienced vultures are relatively easy, with high expectations of success as long as the birds are released in a group, and provided that the reintroduction personnel make efforts to ensure that the vultures learn how to live and scavenge gregariously.<sup>[82]</sup> But there's one notable area in which vulture reintroductions are more difficult: the necessity of manipulating their food. For typical birds of prey, live prey can simply be provided near the release site; but for vultures, it's usually necessary to encourage them to travel widely and seek carcasses near and far if they are to become truly independent of their human overseers.<sup>[83]</sup> Again, here are Michael Wallace and Stanley Temple, explaining the difficulties of teaching reintroduced Andean Condors to scavenge for themselves:

[I]t was necessary to carefully position carcasses in varying directions and at increasing distances from the release site. The tendency of the released birds to return to their last successful feeding spot when hungry and to be attracted to gatherings of other scavengers at carcasses facilitated their learning. Eventually their foraging area expanded to a size that allowed the birds to locate natural carcasses at rates that provided for their needs.

Far from a hands-off approach, this required constant surveillance of the released birds, not to mention a steady supply of carrion. The Condors could become independent of the human-provided food only when their searching ranges encompassed areas large enough that they were a number of places where natural carcasses could be consistently found. Based on these findings, it could be safely predicted that young Condors would take much longer than the usual one-year period to become independent of their parents if they had the misfortune to fledge in an area with a lower-than-usual frequency of carcasses.<sup>[84]</sup> On the other hand, if a lack of wandering is deemed desirable, then reintroduced vultures can merely be fed where they are released, thus discouraging them from journeying elsewhere in search of food. This tactic was used in a French program in which [Eurasian Griffons were released into the Causses Mountains](#) from 1981 to 1986. The Griffons were introduced into an area where their species, and all other vultures, had been extinct for decades; as a result, there were no behavioral traditions of wild vultures for them to imitate, and with a steady supply of carcasses provided by humans they had no need to look for food elsewhere. The Griffons therefore voluntarily restricted their foraging to a small area surrounding the feeding site.<sup>[85]</sup>

Although a few vulture reintroductions have gone badly, for the most part there are very high survival rates (on the order of three-quarters or more) for reintroduced vultures - especially when compared to other reintroduced animals, in which a survival rate of 10% is often deemed acceptable, and only half of all the reintroducees turning up dead is cause for rejoicing. This is partly because vultures are large animals at the top of the food chain with few potential enemies; but, perhaps more importantly, it's also because the vultures in a reintroduced group tend to help each other, rather than compete with each other. If vultures are released as a group in the same area, they can perch together, fly together, and scavenge together, learning from each other in the process. The process is even more successful if the reintroduced group includes one or more older, more experienced vultures that already know how to survive in the wild.<sup>[86]</sup> There's a clear difference in the mentality of vultures compared to that of more predatory and less social animals; the first thing that a group of asocial mammalian carnivores or raptors would do if released into an unfamiliar area (or the second, after thinning out their numbers with a little intraspecific killing) would be to scatter far and wide, establish territories, and ensure that those territories were respected.

For most predominantly predatory carnivores, and for some predominant scavengers that feed largely on small carcasses, territoriality ensures that they will be able to hunt and eat their prey without being disturbed by others of their kind; if they are disturbed, it will be by an intruder well aware that it is encroaching into hostile, unfamiliar territory. The holders of a territory are all but guaranteed supremacy within their territory, which serves not just as an exclusion zone, but also as a sharply demarcated boundary between dominance, on the inside, and submission, on the outside. For many vultures, and for other scavengers that gather at large carcasses, territoriality is a useless concept; large carcasses are so widely scattered in time and space that there's little point in attempting to define an exclusion zone around them, and they contain so much food that there's no reason to restrict other scavengers from feeding upon them. But conflicts still arise between scavengers; and the competition between and especially within vulture species is solved by hierarchies, which serve as replacements for the territorial instinct.<sup>[87]</sup> The navigation of these scavengers' hierarchies may be the single most complex thing that a young vulture has to learn in order to survive in the wild;<sup>[88]</sup> indeed, it's thought that the more atypically violent encounters between vultures at carrion involve very young birds that have neither established their proper place in the pecking order nor yet learned the correct rules of engagement.<sup>[89]</sup> But we humans shouldn't be quick to sneer at such neophytes; after all, we've having been studying vulture hierarchies, off and on, for thousands of years, and we still don't fully understand them. The skills that most carnivorous animals use to kill prey are not of much use here; scavenging conflicts at a large carcass are more similar to territorial battles than acts of predation, and are far more intricate, tricky, and complex than any predator-prey relationship.

The interspecific hierarchies occupied by scavengers readily demonstrate this complexity for, despite many claims and insinuations to the contrary, the predatory potential of a given scavenger seems to have no bearing on its position in such a hierarchy. Interspecific scavenging hierarchies are based primarily on size and numbers, and to a lesser degree on aggressiveness, and neither trait has any correlation with predatory behavior. A Golden Eagle unquestionably has greater predatory potential than a Eurasian Griffon, but the Griffon is nevertheless going to dominate the Eagle when the two birds come into conflict over a carcass,<sup>[90]</sup> just as a predominately scavenging Raven can often dominate a more predatory buzzard or hawk. Similarly, Gray Wolves are far more powerful and efficient predators than Striped Hyenas, but the Hyenas are dominant over Wolves when scavenging, at least on a one-on-one basis.<sup>[91]</sup> Brown Hyenas, possibly the least predatory of all mammalian carnivores, can successfully face down Leopards,<sup>[92]</sup> and throughout Eurasia, Wild Boar are notorious for their ability to dominate other scavengers and to drive predators from their kills, although the mostly herbivorous pigs can hardly be described as ambitious predators.

Against some competitors at carrion, a vulture may be clearly dominant; against others, it may be clearly subordinate. But then, there are those against which there is no clear-cut rank, and therefore the interaction may go either way. Although scavenging hierarchies between different species tend to be fairly clear-cut - one species is usually dominant over the other, even if the two are very similar in size - they are not immutable, and can easily be changed by unusual circumstances. At carcasses in Africa, small Egyptian Vultures rarely put up any kind of resistance against the similar-sized Hooded Vultures; but at the Egyptians' most specialized food source, Ostrich eggs, they will fight the Hoods *in the air* with great vigor and tenacity.<sup>[93]</sup> When airborne, the Lammergeier's vast wingspread and tremendous agility ensure that it is dominant over Eurasian Griffons as well as other large birds of prey. But on the ground, sheer body mass is what counts, and the much heavier Griffon is dominant; a useful advantage to the Griffons when they attempt to steal bone fragments from Lammergeiers.<sup>[94]</sup> By the same token, Lammergeiers are ordinarily considered to be subordinate to

other large scavenging birds at carcasses, as they usually don't bother to compete with them; but Lammergeiers can and occasionally will successfully fight with other vultures and eagles for a feeding spot at a carcass, although it's unclear what might trigger such sudden bursts of aggression.<sup>[95]</sup> During his study of the California Condor, Carl Koford noted that the Condors were more willing to challenge the usually dominant Golden Eagles over carrion late on cold and overcast days; presumably because the Condors knew that difficult flying weather was approaching, and that failing to take on the Eagles then and there would likely mean going hungry for a while.<sup>[96]</sup>

While baiting birds of prey with a carcass during one of his shooting forays in Hungary, the avid bird hunter Crown Prince Rudolf came across a curious tableau of two large scavengers facing off over the carrion: "a great [White-tailed] Sea-Eagle, and a few paces off an extremely large Vulture." (A Monk Vulture (right), judging from Rudolf's description of "its bare bluish turkey-like neck.") From a strict reading of scavengers' hierarchies, one would expect the Vulture to summarily dominate the Sea-eagle; after all, Monk Vultures are certainly dominant over Golden Eagles, which are themselves dominant over Sea-eagles when the two meet. But a wild card was in play here: unfamiliarity. The two great scavengers seldom come into contact, as they tend to inhabit different habitats: low-lying coasts and wetlands for the Sea-eagle, and higher and drier steppes and mountains for the Vulture. Quite possibly, neither the Vulture nor the Sea-eagle had ever encountered another bird of the other's kind before, at least not at a carcass, and therefore had no idea what to expect from its large and formidable opponent. And so, with neither bird willing to immediately claim the carcass, but neither willing to walk away, "no sooner did one of them make a move towards it, than the other sprang in front of him and checked his further advance. . . . the enormous Vulture hopping up and down . . . its plumage ruffed and puffed out with rage; while the Sea-Eagle, on the contrary, drew in its feathers close to its body, and bending its head backwards uttered its angry "glik, glik" with widely opened beak." Although this description makes it sound like the Sea-eagle was exhibiting submissive behavior, and so was about to back down, the standoff was never resolved; true to form, the Crown Prince ended it by shooting the Vulture, which of course frightened off the Sea-eagle. He later wrote that none of the many raptors he had shot "ever seemed to be so heavy as this vulture, and I was much delighted with my booty."<sup>[97]</sup>



A particularly fascinating aspect of the hierarchies is found in the relationships that form between different vulture species. No real complexity is immediately evident; it merely appears as



though each vulture sees larger birds as threats to be avoided, and smaller birds as annoyances to be ignored or occasionally jabbed at; but there is more at work here. When deciding whether or not to approach a carcass, larger vultures seem to use smaller ones as gauges of threat, much as miners use canaries; and, although larger vultures certainly do dominate smaller ones, sometimes to the extent of driving them away from a carcass, they can also be quite helpful to their smaller cousins. In a study of the vulture guild found in western South America, it was noted that Black and Turkey Vultures that had gathered at large carcasses with intact hides “became noticeably excited” when larger, stronger vultures like King Vultures or Andean Condors showed up.<sup>[98]</sup> It isn't readily apparent why the sudden appearance of a bigger and more powerful competitor at a coveted food source should be cause for rejoicing, until one considers that small vultures often have great difficulty in penetrating the skin of large animals. Large vultures can tear through thick hide, creating many entry points, and that's when the excitement of the smaller vultures bubbles and spills over, resulting in the famed "feeding frenzies" during which many vultures feed all at once. There have even been claims that Black Vultures, upon finding an intact carcass too large for them to break into, will deliberately find King Vultures and lead them to the carcass in order for it to be opened. As we've already seen, large vultures that are capable of opening carcasses whose contents are otherwise off-limits to their smaller brethren have been dubbed “kings,” “chiefs,” and similar titles in cultures around the world. There's a price to pay for the smaller vultures, as the kings are dominant over them, and may choose to enforce that dominance at any time; but on the whole, the benefits of the vulturine "monarchy" for all concerned probably outweigh any problems. Undersized vultures certainly don't seem to harbor any persistent dislike for their larger cousins; as William Dawson wrote in *The Birds of California*, small vultures “appear to cherish a certain esteem for their greater brethren.” He described watching California Condors fly near roosts of Turkey Vultures, at which point the smaller birds would "sally forth from their rookery by the dozen or score to greet their homing kinsmen, circling about them, and appearing to act as a sort of escort or guard of honor for returning royalty.”<sup>[99]</sup> What the birds had in mind while doing this, none of us can say.

We've only begun to delve into the labyrinth of vulturine sociality, a bewildering maze of animal behavior that seems to produce unexpected corridors with every new corner that is turned; and we can't possibly explore the entire subject here. But the sheer complexity of vulturine sociality raises one question that must be answered: Just where did it come from? Were the vultures' most distant ancestors already social, before adopting the scavenging lifestyle; or was sociality adopted by the birds after becoming vultures, as an even better way to scavenge? The answer is likely different for each the two living groups of vultures. The storks and allied birds that are believed to be the ancestors of the New World vultures are themselves often social, with most species commonly seen feeding in aggregations not unlike those of vultures. Also like vultures, these social storks seem to be attracted by others of their kind, following birds that have already found food in hopes of getting some of it for themselves. It seems to be to the storks' advantage to gather in large numbers at food sources, like dried-up fish ponds, that are similar to large carcasses in the sense that they're thinly spaced in time and space, but that once found contain far more food than a single bird can eat. Although the potential advantages that the storks derive from these gatherings (namely, the chance to hide from predators in a large group, and the ability to overwhelm their own prey with their numbers)<sup>[100]</sup> are rather different from those of the vultures in their gatherings, it still seems likely that the social behavior of the New World vultures is quite ancient in its origins, perhaps dating from a time when they weren't yet vultures.

In the Old World, it's more probable that the reverse was true; vulturine foraging habits most likely evolved first, among largely asocial raptors, and only afterwards did the peculiarly vulturine brand of sociality develop among the Old World vultures. This chronology is supported by the differences in social behavior between the dark vultures, which are still similar to other raptors in the sense that they frequently hunt live prey, claim territories, and mostly avoid very large aggregations of their own kind; and the more specialized griffons, which do none of those things. Of course, some would argue that in both New and Old World vultures, social behavior is essentially utilitarian in origin and remains so in purpose, and therefore shouldn't be compared with the better-known and seemingly more emotional communal histrionics of mammals like Wolves or Chimpanzees. Nevertheless, as the case of the lonely Mallorcan Monk Vulture nestling illustrates, vultures may pine for the company of their own kind *even when they would derive no concrete advantages from such company*. The Monk nestling that was inadvertently left on its own in a nest for ten days required no assistance in finding or consuming its food, needed no additional protection from predators, and certainly had nothing tangible to gain from the arrival of other nestlings. Nothing but that vague and treasured ideal of "companionship."

Vulturine companionship is likely to be interpreted much more ominously among humans; although many people have developed what they believed to be meaningful relationships with captive vultures, and the feelings of fellowship that vultures can sometimes conjure in the minds of travelers should not be overlooked. Many a person trekking in some desolate desert or godforsaken mountain range has had no company other than a great carrion bird, watching from a steady vantage point overhead; and foreboding as a vulture initially might be, once one gets used to it, it may well become welcome company. Some vultures make a habit of accompanying travelers; judging from historical accounts, it seems that prior to the 20th century scarcely anyone who walked or rode anywhere in the plains and deserts of Africa or southern Eurasia did so without at least one Egyptian Vulture appearing and trailing them. One 19th-century British military officer, marveling at the omnipresence of the birds in the Sinai Peninsula, recorded that:

Wherever we pitched our tents in the desert, whether on a sandy plain or almost hidden among those towering mountains, an assemblage of Egyptian Vultures were certain to be the first living things we saw in the early morning, and the last birds to take leave of us at night.<sup>[101]</sup>

These small vultures sought out humans only for the scraps and other food that they could be expected to provide, not in the expectation that the travelers would meet an untimely death. When the Vultures stumbled on the encampments of trigger-happy Europeans, it was they who were in danger; Crown Prince Rudolf described how, in Egypt, his party was eating breakfast "when an Egyptian Vulture had the impudence to fly into the camp and settle among the tents to devour some of the kitchen scraps"- at which Rudolf's uncle "quickly fetched his gun and shot the audacious bird."<sup>[102]</sup>

Although they induce the greatest terror when they appear en masse, vultures need not gather in numbers to strike fear in human hearts; even when they appear as individuals, they can induce a sense of dread. Vultures are almost unique among the animals at the very top of the food chain in that they usually present no threat to humans. The only vultures that can be accused with any plausibility of ever having killed any people in any situation are the Lammergeier, the Andean Condor, and the Black Vulture; the former two species only when they come across people during compromised situations in unfavorable terrain, and the latter species only when said people are *in extremis*, rendered immobile and helpless and then offered to large groups of the Vultures by other people. Nevertheless, in humanity's encounters with vultures there is always an underlying fear that these

formidable creatures may make a sudden leap from merely eating the dead to killing the living; that the scavengers may become predators. We've seen that most scavengers, vulture and otherwise, are also predators, though the roles may become unusually sharply demarcated where humans are concerned. Spotted Hyenas will eat dead humans as readily as anything else, but Hyena attacks on living humans are comparatively rare, considering that Hyena clans routinely kill human-sized prey. The same can be said for some other mammalian carnivores, though there is evidence that carnivores which eat human corpses frequently acquire a taste for them, and so become less reluctant to attack living men and women. This dietary turnabout clearly does not apply to vultures or other avian scavengers; it would be all but impossible for them to successfully attack human-sized prey except in extremely unusual situations, and as a result they are uninterested in living, mobile humans as prey. Despite their usual restraint in doing so, Hyenas can kill humans as well as scavenge them; vultures, with rare exceptions, cannot. This has no bearing on the fact that many people believe that they can, and do.

There is abundant evidence, from studies of human phobias as well as of the behavior of other great apes, that antipathy towards (or outright terror of) other animals may be instinctive among our kind. For example, the apparently universal human fear of snakes and spiders seems to be encoded in our genes, although it can be overcome through experience and willpower. Whether fear of large raptors, including vultures, can also be considered instinctive is more difficult to determine. We saw [in Chapter 2](#) that some of our ancestors did experience raptor predation, but today's adult humans are too large for any but the most desperate raptors to consider them potential prey, and most reports of modern raptor attacks on people are incredible and easily disproved. Extinct birds, on the other hand, can be accused of just about anything, since they aren't around to exonerate themselves. The huge and extinct teratorns of the New World are especially popular suspects for predation on humans, the reasoning being that they were big, they were carnivorous, and the latest of them almost certainly encountered humans. But as iterated [in Chapter 2](#), it's more likely that the teratorns were pirates than predators; and even if they did hunt live prey, it hardly seems likely that a teratorn with no killing weapon but a rather fragile bill would attack prey much taller and heavier than the bird itself. To survey the vast range and number of man-killing raptor stories - vultures and eagles carrying off infants and children, Lammergeiers sending mountaineers hurtling to their deaths, all of the hundreds of "big bird" stories with themes of mortality told around the world, the strange death of Aeschylus, and the frankly ludicrous idea that teratorns preyed on the earliest Amerindians - is to reach one inescapable conclusion: people, in some sense, *want* to be preyed upon by raptors. Perhaps it represents a sort of primeval, instinctive desire to be killed by something more ethereal (and less smelly) than a mammal or reptile.

Though probably less desirous of such a fate, some other animals seem to perceive vultures as dangerous, and become visibly alarmed when the birds appear. Herbivorous mammals in the Andes clearly recognize Andean Condors as predators, and will go out of their way to chase off the vultures when they approach their herds too closely - even if the Condors don't behave aggressively.<sup>[103]</sup> Many animals throughout the Americas, from skunks to domestic Cats to hatchling caimen, seem to understand that packs of Black Vultures are genuinely dangerous, and that shelter should be sought when the birds are on the prowl. A recent field study of several raptor species in the forests of Guatemala made the surprising discovery that nesting eagles in the area react to Turkey and Black Vultures in flight with energetic defensive displays far more vigorous than those offered to other, seemingly more predatory birds. Sometimes even the young chicks of the eagles joined in these displays, indicating that they instinctively recognized the vultures as threats. The researchers involved



in the study recalled that, ““Even when a vulture soared high overhead . . . [the eagles] often grew agitated and gave a threat display or called or did both,” and thought that these reactions “seemed disproportionate to the threat posed by the vultures.” No actual attacks by vultures on eagles or their chicks were witnessed, though the researchers noted that the Black Vulture, at least, has a well-documented record of predatory behavior in other situations.<sup>[104]</sup>

Similarly, many of the mountain animals living in the Asian range of the Lammergeier are said to be very afraid of that bird, and to be able to distinguish it from griffons which they consider to be harmless.<sup>[105]</sup> Contrariwise, Alpine Marmots living in the Pyrenees of Europe react to both Eurasian Griffons and Lammergeiers as potential predators; but are less alarmed by Lammergeiers than by Griffons, though there doesn't seem to be any evidence that Griffons prey on the marmots.<sup>[106]</sup> In India, it's been noted that the Egyptian Vulture “appears to be the bird most feared” by one of the subcontinent's heaviest birds, the Great Indian Bustard. It hardly seems credible that a Bustard at least four times more massive than the Egyptian would have any cause to fear it; nevertheless, Bustards have been seen to hide in bushes when Egyptians appeared nearby, and a nesting hen “lowered her neck and sunk to the ground” when one of the small vultures flew overhead, remaining in that position for five minutes before cautiously raising her head to have a look around. In the latter case, the Bustard's alarm was probably because of the Egyptian's notorious propensity for raiding the nests of large birds;<sup>[107]</sup> but regarding the former case, it's wholly mysterious why an adult, non-nesting Bustard would be alarmed by the proximity of the “impotent vulture,” as the Egyptian is sometimes called in India. Perhaps it's a bit more potent than its reputation suggests. During his studies of Flamingoes at Lake Magadi in Kenya, Leslie Brown noted that Egyptian Vultures “were the most persistent predators” of the pink birds' eggs and young. In fact, the Vultures were so very persistent that the young Flamingoes instinctively recognized and feared them as mortal threats, while ignoring the Black Kites which also frequented the lake but that only scavenged dead Flamingoes<sup>[108]</sup> - leading to an odd situation in which a vulture was singled out and dreaded as a predator while a more typical raptor was regarded as a harmless scavenger.

Aside from predator-prey relationships, and the ever-present portent of death, there is still another situation in which fear plays a decisive role in the relationships of vultures with other animals; but this is one in which it is clearly advantageous for the vultures to be feared. H. B. Tristram learned as much during his journeys in the Holy Land of the Near East, when he witnessed Eurasian Griffons teaching what he termed “a lesson of patience to the inferior scavengers.” During a hike one day, his party caught a crowd of Griffons in the act of rolling over a dead Horse, in order to reach the portion of it that they hadn't yet stripped of flesh. When the humans approached, the great birds departed; and a number of Egyptian Vultures and eagles that had been waiting on the sidelines for just such an opportunity quickly swarmed onto the carcass, despite the presence of Tristram's party less than 10 yards (9.2 m) away; as Tristram said, the smaller scavengers “dreaded us much less” than they did the Griffons. But no sooner had the humans retreated to about 200 yards (183 m) from the carcass “when the griffons came down with a swoop,” the smaller vultures and eagles “hurriedly resumed their posts of observation,” and the Griffons resumed feeding. The only smaller scavengers that dared to try to compete with the Griffons were the acrobatic little Black Kites, which “contrived, by their superior agility, to filch a few morsels from their lordly superiors.”<sup>[109]</sup> This casual, unchallenged dominance over their fellow avians is what led Arabs, like many other cultures around the world, to grant large vultures the title of *sayyid al-tayr*, “lord of the birds.”<sup>[110]</sup> The fear that vultures arouse in other animals has long been recognized and spoken of in the myths and stories surrounding the birds; the widespread Old World belief that carrying a vulture heart protects a person

against all predatory beasts only makes sense from the perspective that other animals dread to attack vultures. Humans have often credited the vultures with greater powers of deterrence than they actually possess, but it is true that smaller scavengers rarely even attempt to compete when the big guys show up; large vultures have much the same deterrent effect on other scavenging birds that Lions or Brown Bears have on smaller mammalian carnivores.

While sheer size and muscle undoubtedly helps the vultures to earn such respect, there are subtler elements in their dominant makeup, especially their often-fearsome appearance. No less a personage than Mark Twain commented on this trait when he described a captive vulture, which he encountered on a passenger ship as it was sailing around Australia:

A vulture on board; bald, red, queer-shaped head, featherless red places here and there on his body, intense black eyes set in featherless rims of inflamed flesh; dissipated look; a business-like style, a selfish, conscienceless, murderous aspect - the very look of a professional assassin, and yet a bird which does no murder. What was the use of getting him up in that tragic style for so innocent a trade as this? For this one isn't the sort that wars upon the living, his diet is offal. . . . Nature should give him a suit of rusty black;

then he would be all right, for he would look like an undertaker and would harmonize with his business; where as the way he is now is horribly out of true.<sup>[11]</sup>



Mr. Clemens was evidently unaware of the harsh truth that vultures, even the relatively unaggressive Pondicherry Vulture (left) that he described, must compete for food with other animals in their innocent trade. While a vulture facing off with other scavengers over a carcass indeed does no murder, its “tragic style” may yet serve another purpose.

There are few situations in nature which are more likely to result in interspecific aggression than the competition between scavengers at a large carcass. Vultures encounter this

situation as part of their daily routine, so it's obviously adaptive for them to appear intimidating, even frightful, to each other; and it isn't unreasonable to assume that they have evolved certain traits making them intimidating to other animals as well. The value inherent in the ability to intimidate, and thus dominate, other avian scavengers is thought to have been one of the major reasons that vultures became so large. Aside from their size, vultures possess several other features that might aid them in intimidation. One of the most noticeable of these is the orbital ridge, the beetle-browed eye shield that is possessed by most vultures and many other raptors but is otherwise rare in the bird world. While the ridges have concrete physical benefits for the bird that carries them, as they help to protect the eyes from damage, they could also have psychological effects as well. Generally speaking, a threat display for a bird, mammal, amphibian, or reptile consists of gaping the mouth, making oneself look as large as possible (by puffing up the body, erecting feathers, crests, or fur, and so forth);

and, for animals with eyelids, narrowing the eyes. A vulture with orbital ridges has permanently narrowed eyes; its face is stuck in a concrete threat display. Some Old World vultures don't have prominent ridges, and it may not be coincidental that these birds - the Egyptian Vulture, Palmnut Vulture, and Lammergeier - are less frequently seen at large carcasses than other vultures, and are generally unaggressive towards other scavengers when they do visit them. In *The Vultures of Africa*, Peter Mundy noted that young griffons have more weakly developed ridges than adults, and so have a less fierce look to them. This "babyish" appearance might well help to inhibit attacks from adult vultures,<sup>[112]</sup> although the disadvantage is that it would also make it that much harder for young griffons to threaten other scavengers. Much the same pattern is seen in New World vultures, with young birds having almost unnoticeable brows and very old ones possessing thick, heavy growths arching over their eye sockets that, as one anatomist wrote, grant them "a far more raptorial aspect than is enjoyed by . . . the younger [birds]."<sup>[113]</sup> The griffons of the Old World have an additional card to play in the intimidation stakes. Among their most notable physical features are their "eye patches": small areas of bare skin located at the shoulder joints. These are very conspicuous when the birds are on the ground, and, like the bare skin on the heads and necks of the birds, can change color in response to mood. The purpose of the eye patches is uncertain, but it is plausible that they may serve as yet another intimidation device, perhaps analogous to the "eye spots" that many smaller animals flaunt in order to discourage predators.<sup>[114]</sup> Finally, as anyone who has encountered a vulture on the ground at close range can attest, those enormous wings transform what would otherwise be just a big bird into something that positively commands respect. A Black or Egyptian Vulture is only about the size of a Chicken, and even the biggest condors are no larger or heavier than a good-sized Domestic Turkey; but no Chicken or Turkey ever had a pair of wings to match a vulture's. Fully spread wings increase the bird's apparent size by several times; and it's worth noting that the wings always figure prominently in the threat displays used by vultures when attempting to dominate other scavengers, and that the larger and more dominant a vulture is, still larger are its wings, in both proportionate and absolute terms.

Staring down competitors while bearing a head the color of fresh blood doesn't hurt, either. No fewer than eight different vulture species have reddish-colored skin on their heads. As every cosmetician and graphic designer knows, red is very conspicuous to animals with color vision, especially if it's displayed against a dark- or light-colored background, such as a vulture's neck ruff and body plumage. Despite Mark Twain's famous comment, "Man is the only animal that blushes. Or needs to," the vultures with reddish heads use blushing as a social signal to others of their own species; a secondary use of the bare skin that their carrion-feeding habits have led them to adopt. Adult birds of these species use red not in the manner that a bull-fighter uses a red cape, to provoke and infuriate, but in the manner that high seas pirates used their red *jolie rouge* flags: to intimidate, and to signal supremacy to anyone that happens to be looking. Aggressive birds will often blush just before attacking an opponent; Lappet-faced Vultures, for instance, prominently display bright red heads at carcasses, especially when enforcing their dominance over other scavengers. Individuals of the most conspicuously crimson species that haven't yet attained adulthood lack the ability to blush the bright red hue of adults; partly because their pigmentation isn't yet fully developed, resulting in a blotchy look when they attempt to blush, and partly because their bare skin is still patchily covered by facial down.<sup>[115]</sup> Of all the vultures with bare heads, it is the most social species - the Black Vulture and Slender-billed Griffon - that have no red color at all in their skin, suggesting that perhaps blushing is less important when dealing with acquaintances than with strangers.



The Egyptian Vulture and Lammergeier also attach great value to their brightly-colored hues; however, these two species conspicuously differ from the other vultures in that their usual diets contain few carotenoids, the organic pigments that, in addition to bestowing vivid colors upon animals like salmon and flamingoes, serve as valuable antioxidants and immunostimulants. Vertebrates cannot manufacture carotenoids within their own bodies, and so they must obtain them through their diets; an easy task for herbivores, which obtain them from the plants that they eat, and for most carnivores. Egyptian Vultures can consume carotenoids by eating insects, or egg yolks (which may help to explain the well-known propensity of this species for nest-raiding); but for most of them, the easiest source for the pigment is found in a less likely place: at the rear ends of large mammals. As we saw [in Chapter 4](#), Egyptian Vultures are well-known for their propensity to eat excrement, most notoriously of humans but more frequently that of wild and domestic large herbivores. This behavior is a bit puzzling; for regardless of the taste, excrement tends to have little nutritional value and is often swarming with potentially debilitating parasites. But the dung of large herbivorous mammals also contains high concentrations of carotenoids. A vulture that consistently consumed it would certainly metabolize enough of the pigment to stay healthy; and in the Egyptian Vulture, the surplus diffuses to the bare skin of the face, resulting in the species' trademark yellowish coloration. Such a vivid visual signal may be useful to the Vulture when attempting to attract a mate, or in disputes over food with other Egyptian Vultures; but the catch is that for such a signal to be truly meaningful, the bird that bears it must be strong and healthy. This particular vulture species clearly has its own, unique standard of fitness; a brightly colored Egyptian Vulture must have the ability both to spend precious time and energy finding excrement with little nutritional value, and to consume that (second-hand) food without being ill-affected by the parasites that are likely festering within it.<sup>[116]</sup> It's recently been noted that among wild Egyptian Vultures there's a fairly consistent difference in the coloration of the sexes, with females typically having straw-yellow faces and males possessing more

livid, orangish visages.<sup>[117]</sup> The more intense color of the males suggests that they may be even more apt to eat shit than the females; a conclusion that surprises absolutely no one, I'm sure.

Yet the vulture that seems to attach the most importance to reddish color, the Lammergeier (left), has no bare skin on its head at all. Furthermore, the Lammergeier's staple diet of bones is extremely poor in carotenoids; and though Lammergeiers have occasionally been seen to consume excrement,<sup>[118]</sup> such behavior seems to be rare. Lammergeiers are thus placed in the unenviable situation of sorely needing red pigment in order to establish themselves as dominant adults, yet being unable to either manufacture it or, under normal circumstances, to ingest it. Their solution is to ornament themselves with artificial red pigment, in the form of the iron oxide (rust) found in the soil and water of their mountain homes. Lammergeiers held in captivity don't acquire any reddish color unless they are specially supplied with soil, dust, or water that contains iron oxide. Captive Lammergeiers which *are* offered damp reddish



soil to bathe in seem to take delight in the opportunity: first they crouch in it, rubbing it across their undersides, then use their bills and talons to transfer the pigment to their backs and shoulders, then swing and twist their heads from one shoulder to another, thus coating almost all of their white feathers with the rust. In light of this behavior, which appears to be instinctive and not learned,<sup>[119]</sup> the Lammergeier's trademark "beard," a bundle of small, stiff feathers jutting from the underside of its bill, may serve in part as a sort of paintbrush to help the bird spread pigment across its feathers. When dusted onto the white feathers of the breast, neck, and head, the rust is very conspicuous; and recent research with wild Lammergeiers indicates that the more vivid a dusting of color is, the more socially dominant is the Lammergeier that bears it.<sup>[120]</sup> Although modern observations of wild Lammergeiers engaging in dust-bathing are scarce, the behavior has been known for a very long time; Pliny the Elder described it in his *Natural History* in the first century BCE, and supposed that Lammergeiers used the dust to blind their prey by shaking it into their eyes.<sup>[121]</sup> Rather, it's humans that have been blinded, or at least dazzled, by the display; as we've seen, many people have been mesmerized by the visual effect of a vivid mineral color coating the white feathers of a huge bird, and have bestowed names with meanings like "shining," "jewel-like," and (of course) "golden" upon the Lammergeier.

Still, the Lammergeier's full crown of feathers, not its coloration, has always been the primary criterion for separating it from the other vultures; for most people, vultures just wouldn't be vultures without bald heads. Baldness is a very dramatic departure from the normal condition among birds, and one can't help but wonder how opinions of vultures might have differed if baldness was the norm among their fellow avians. As we've seen, one of the most popular themes in folktales about vultures is an explanation of how the birds first lost their head feathers. Fire is clearly the most popular expedient for this; but some tales about vultures losing their feathers from becoming entrapped in large animals are surprisingly similar to the hygienic theories put forth by modern science to explain vultures' bald pates. The Old World vultures that have unfeathered heads are the only living raptors with that condition, although many other raptors (mainly tropical species) do have patches of bare or downy skin on their faces. The New World vultures have rather more company in their baldpated state, as many of their close relatives, the storks, also have bald heads; and there are hundreds of unrelated bird species with more-or-less bare noggins, from the Ostrich to the Leatherhead (more commonly known by the joyless name of "Noisy Friarbird") to the recently discovered Bare-faced Bulbul. Several non-vultures with the condition are named after vultures, including the Vulturine Guinea fowl of Africa and the Vulturine Parrot of South America. And extinct birds with any kind of evolutionary relationship to the vultures, such as the teratorns, will almost inevitably be depicted as bald, as long as they are also thought to be scavengers.

Whatever benefits of recognizance baldness affords to the vultures, it also contributes greatly to negative opinions about them. The bare head of a vulture, as compared to the feathered heads of most other birds, lends it a ghoulish appearance, like a desiccated corpse with skin stretched tight across its skull. More than one observer has commented that a vulture looks like an eagle with some kind of degenerative disease; and there might well be a subconscious worry among humans that the condition could be contagious. When preparing to play their traditional ballgame, the Cherokee people of North America would use animal parts, the Amerindian equivalent of steroids, to make themselves better players; for example, they would rub their bodies with eel skins to make themselves slippery and difficult for opposing players to catch, or apply portions of tortoise to their legs, in hopes of making them as thick and strong (but not as slow) as those of the tortoises. One animal part was absolutely verboten in these pre-game ceremonies: vulture feathers. A Cherokee ballplayer would never wear Turkey Vulture plumage, for fear that doing so would mean going spear bald soon



afterwards.<sup>[122]</sup> The German ornithologist Christian Ludwig Nitzsch, who specialized in the study of feathers, felt that

birds are indebted chiefly, if not entirely, to their feather covering for the elegant and pleasing form which procures them so many friends and admirers. It is certain that the greater part of that public which does not follow out scientific objects in the study of zoology would detest birds if they were featherless animals, as much as naked batrachians [frogs] and lizards, which now excite almost universal aversion, however beautiful they may be in their colours. [Translated by W. S. Dallas]<sup>[123]</sup>

In truth, the negative attitudes towards vultures found in many societies can be attributed to more than just baldness. It must be said that while beauty is in the eye of the beholder, certain other bald birds, such as some of the storks and ibises, could hardly be described as conventionally attractive; yet the only other bald birds that even approach the vultures in the volume and tenor of the disparaging remarks directed against them are the Marabou and Adjutant Storks.<sup>[124]</sup> These are also scavengers, and their reputations confirm beyond doubt that it is the combination of the scavenging habit and the bald head, rather than just one or the other, that leads to the vulture cultural archetype, the concept of a vulture that people carry in their minds. (Or, if you will, the human searching image of a “vulture.”)

That archetype incorporates two distinct visual forms, each clearly identifiable as a vulture by any person familiar with the concept that the forms are intended to represent. The form of a large, drab, bald-headed and neck-ruffed bird is the image that comes to most people’s minds when the word *vulture* is mentioned. The other visual form, which is essentially just a silhouette of a large soaring bird, is in some ways more prevalent. This form is also shared with other birds - eagles, buzzards, and storks among them - which leads to much generalization and confusion, because casual observers often can’t or won’t differentiate between these different birds. A fundamental separation of the images of perched and flying birds in the human mind is apparently very ancient; it is evident in prehistoric rock and cave paintings, in which depictions of perched birds are frequently detailed enough to identify the birds depicted down to the family level (and sometimes even to a particular genus or species), but flying birds are rarely identifiable as anything more specific than “birds.”

Languages also apply gross generalizations to the vultures, although those stemming from the Old World Indo-European languages are the only ones presently documented well enough for detailed explanation. For those who don’t want to traipse through Chapters 4 and 7 again, the approximate sequence of events leading to the modern words for vultures was as follows: In the Asian homeland from which the Indo-European root language sprung, the word *\*gultur* was applied to the local large carrion-eating birds. Judging from its resemblance to the modern but unrelated word *gulper*, the word was probably onomatopoeic, a reference to the birds’ eating habits. In India and the surrounding area, the word apparently became generalized and was applied to non-vulturine animals, especially wild and domestic cattle. As a general term for vultures, it was replaced by *\*ghi* (which nowadays sounds more like *gidh*),





although *\*gultur* survives in India as a root for the local names of several vultures. *\*Ghi*, meaning "gape" or "wide opening," and again a reference to the bird's eating habits, was then applied to vultures in general. It managed to make its way west into Central Europe, and with an added *r* it became the Germanic *geier*. *Geier* and its offshoots became the default word for vultures in the Germanic languages, and remain so today; except in English, where they have been replaced by Latin-derived names - with one exception: the infamous and controversial *Lammergeier*. The third notable Indo-European root, *\*ghreib*, was apparently borrowed from the ancient Hittites in the second millennium BCE by the Greeks, among whom it became *gruph*; both words meaning "to seize." *Gruph* was then borrowed from the Greeks by the Romans, and from Latin Roman usage it descended into many other European languages, notably in the form of *griffin*. The word was applied to vultures specifically by the late 17th century, though possibly earlier. It remains in use as a term for the griffons, a distinct group of Old World vultures.

Last but not least, there's the root of *\*uel*. This made its way into Latin as the verb *vellere*, meaning "to wound" or "to tear," and a multitude of related words. At some point in Latin's early history, *vellere* was combined with *\*gultur* (which, remember, had probably lost all but a very generalized meaning by then) to produce - drumroll, please - *vultur*.<sup>[125]</sup> Meaning, appropriately, "tearing creature." It's pertinent to note that almost all of the Indo-European vulture names are grounded in three basic concepts: grabbing, tearing, and swallowing. Now you can see why *buzzard*, which probably originated in part as an onomatopoeic mimicking of noisy flight, is so out-of-place as a name for vultures. As of yet, there isn't enough information available about the etymology of vulture terms in other language families to determine if these patterns are universal; however, it is worth mentioning that one of the most widespread Spanish names for the Black Vulture, *Zopilote*, was adopted from an Nahuatl (central Mexican) Amerindian name for the bird, *Tsopilotl*, which itself was derived from *tzopinia*. The latter word was a verb, which meant "to puncture" or "to tear."<sup>[126]</sup>

Despite their hazy and ancient origins, today's generalized "vultures" are artifacts of modern, Europeanized and Americanized global culture; obviously, more isolated cultures have had different conceptions of what was or wasn't a vulture, assuming they had any such conceptions at all. Such conceptions could be based on habits as well as size or appearance. The Gurung people of Nepal hold that there are three kinds of vulture: the *nhalina-kroe* (Egyptian Vulture), which eats the eyes, mouths, and noses of carcasses; the *se-kroe* (probably an amalgam of Nepal's griffons and Monk Vultures), which strips flesh from the skeletons of carcasses; and the *rhibti-kroe* (Lammergeier), which carries off the remaining bones, smashes them, and swallows them.<sup>[127]</sup> In any culture, vultures that don't share all of the characteristics incorporated into the generalized "vulture" are likely to be set apart from their more typical cohorts. These maverick birds include species like the White-headed and Pondicherry Vultures that, unlike most vultures, were frequently observed attacking live prey, as well as birds that simply didn't look like other vultures. The Lammergeier is the least vulture-like of all vultures in terms of appearance; even those peoples who declined to grant it such conspicuous names widely recognized this, and it was often identified not as a vulture, but as a kind of eagle (as in parts of Africa and China), as a gigantic kite, or as something of its own, a type midway between vulture and eagle (as in Europe). Likewise, the Lammergeier's more diminutive relation, the Egyptian Vulture, is often identified as a kite or something similar by the cultures which share space with it. With its relatively small size and slim build, it certainly looks more like a kite than a griffon or dark vulture; but more importantly, it behaves like a kite, feeding heavily on small carcasses and garbage and actively seeking out human settlements for such food. In the 19<sup>th</sup>-century United States, the Black and Turkey Vultures, though identified as vultures or "buzzards," [occupied a cultural niche](#) that was closer

to that of the Old World kites. All three of these small vultures shared with kites a propensity for civil habits: they could live on familiar terms with humans, eating the same food, dwelling in the same areas, and generally behaving like pets gone feral. Other vultures avoided or even shunned contact with humans, and were thus less conspicuous and more mysterious. We might call these latter vultures “primal,” and the lifestyles that vultures have adopted in the humanized world, as well as the views surrounding these lifestyles, can be broadly divided into categories of civil and primal.

Primal vultures, especially the larger and warier species, were unfamiliar to most people. Much of the seemingly ridiculous and outrageous vulture folklore in this book originated as honest efforts to explain the appearance and behavior of large and spectacular birds that remained frustratingly mysterious and unapproachable. For most birds, their nests served as the primary wellsprings from which humans could gain intimate knowledge of their habits; but vulture nests were usually located in remote, inaccessible areas and were often genuinely unattainable to the hand of man. Near the height of the Roman Republic in the first century BCE, Pliny the Elder could flatly state of vultures that, “No one has ever reached their nests, and consequently there have actually been persons who have thought that they fly here from the opposite side of the globe.”<sup>[128]</sup> George Byam, a 19th-century British explorer who boasted of spending a great deal of time watching (and shooting) Condors in the Andes, still had to admit that not only had he “never found the nest of a condor,” he also had “never heard from any of the [natives] that they had seen one themselves; although I have heard plenty of stories about the birds and their nests . . . but the result of my inquiries has been, that no person I have ever spoken to on the subject had ever seen a nest himself, although many said they knew persons who had seen one of them.”<sup>[129]</sup> Primal vultures didn't flit from branch to branch or rest in ponds and streams like other, more obliging birds; they soared high in the sky, perched on unassailable cliffs or tall, dead trees, and remained aloof from human curiosity, thus providing rich fodder for flights of imagination.

And these fancies need not always be macabre and doom-laden; if the culture in which they are mythologized frowns upon open acknowledgement of death, then even the largest vultures may no longer be looked at as harbingers of doom, despite being unmistakably vulturine. The most obvious example would be the California Condor. A person lucky enough to see the massive form of one of these birds circling overhead is much more likely to reach for the nearest camera than to fly into an existential panic. There's no reason why this should be - California Condors assuredly would eat human corpses if given the opportunity, and probably did so occasionally until the late 19th century - other than the image of benign majesty that has been constructed around the species. The drawback of that image is that debates over the fate of large primal vultures are often based more upon emotion than upon fact, especially when compared to the less exalted civil vultures. We already know about the [emotional debate that ensued](#) when it was first proposed that drastic human intervention was the best way to save the California Condor; in contrast, it isn't easy to imagine 19th century Charlestonians suing each other over the fate of their city's civil “buzzards,” or proclaiming that they should be allowed to “die with dignity.” However, there is an unexpected intersection between Charlestonian views of their city's “buzzards” and Californian views of their state's Condors. The Charlestonian birds, as well as the small civil vultures of the present day - the Hooded in northern Africa, the Black in Latin America, and the Egyptian in southern Asia - do not depend on human corpses for food, despite the fact that they are scavengers dwelling in the centers of vast human populations which are often cursed with considerable mortality rates. The usual diets of these birds consist of garbage, excrement, roadkill, and small animals; as a result, their presence typically elicits no more dread or ominous foreboding than the presence of Condors does from Californians.

Civil vultures may still be viewed with uneasiness by those familiar with them, especially if the birds behave unusually. In the West African nation of Ghana, where Hooded Vultures commonly act as urban scavengers, supernatural powers may be ascribed to the vultures if they closely watch individual people (especially persons thought to be hated by witch spirits), perch in trees near the site of a fatal accident, or approach the homes of people who have recently lost a loved one. But for the most part the Hooded Vultures are simply ignored or treated as minor nuisances, much like the crows that accompany them in their urban feeding forays.<sup>[130]</sup> Such civil vultures remain vultures in a biological sense, and may still be described as "vultures" by the people whose activities feed the birds, but they have largely traded the eerie power over human emotions that many of their larger, shyer cousins can claim for the benign familiarity that humanity grants to other feral and urbane animals. An average São Paulan would probably no more think of Black Vultures as embodiments of death incarnate than a New Yorker would think of Pigeons as symbols of universal brotherhood. The small civil vultures have departed from the vulture archetype as a direct result of their intimate relationships with humanity; and, as far as the human mind is concerned, have instead become something closer to other civil scavengers like crows, kites, and gulls. These are delicate tradeoffs, of course, but the net result is that the civil vultures are largely tolerated and taken for granted, unless they become a nuisance for some reason, or disappear.

In much of the world, they have disappeared, marking the final stage of the vultures' attempts to adapt to human actions. Vultures are thought of as part of the past in many industrialized societies that occupy areas where the birds once roamed; the circumstances in which the birds thrived long ago, whether they were truly "wild" conditions or merely "primitive" pastoralism, have been discarded as stepping stones in the path of progress. For many people, there is something in the sight of a vulture crossing the sky that awakens a feeling of the past, of a time when the sky was not so empty as it is today; and in that sense, vultures are primordial, a symbol of a time when the world was more alive and less mechanized than it is now. Many thinkers have commented on the apparently universal human tendency to idealize the past, to make it seem grander than it really was. This tendency applies to animals of the past, as well; it seems that the creatures of yesteryear were inevitably just a little bigger and a little more spectacular than the modern runts crawling, swimming, and flying around nowadays. Of course, the giants of the ice age were a big step further than that; and what creatures alive today could compare to the dinosaurs in scale? Although the last dinosaur died about 60 million years before the first proto-human lived, the ruling reptiles have still come to represent an apotheosis of the gargantuan past in the minds of many.

The large wild animals that *are* still with us are not exempt from this line of thinking; over and over again, they are described as though they are relics, regardless of their actual antiquity. Rhinos are "prehistoric," crocodiles are "antediluvian," vultures are "ancient," "primitive," and even "pterodactyl-like." Any large vultures are liable to be viewed as doddering relics that are nothing so much as fading spectacles of a bygone world, and the condors of the Americas have proved particularly vulnerable to such an interpretation - which [very nearly ensured](#) the extinction of the California Condor in the 1980s. In Europe, the favorite target for missiles of obsolescence was the Lammergeier; a species that, to the experienced bird hunter Abel Chapman, was "ever reminiscent of the Pleistocene with its flying-dragons."<sup>[131]</sup> According to Crown Prince Rudolf, writing in the late 19<sup>th</sup> century, "The sight of a Bearded Vulture involuntarily suggests the thought that here must be a creature that does not belong to the fauna of the present day, but is a gradually expiring relic of an earlier epoch. And so it really is. . . ." He went on to lament that the birds were "children of the highest mountains, dependent on conditions of utter freedom and repose," and had "retreated before the all-destroying



race of man into a few isolated mountain ranges, where even the last survivors are approaching the period of their final extinction."<sup>[132]</sup> Canon H. B. Tristram agreed; though a great admirer of the Lammergeier, he lamented (also in the 19<sup>th</sup> century) that, "Everywhere . . . its numbers are rapidly diminishing, and it will probably soon be added to the already long list of extinct species."<sup>[133]</sup>

This way of thinking is largely an artifact of the scientific age; to most if not all earlier societies, the past was myth, not history, and as such was beyond the ken of ordinary people. The knowledge that time moves on, and that the present situation is not immutable, has proven a bitter pill for humanity to swallow. To this day, many cultures around the world show little understanding of the passage of time, and less desire to *attempt* to understand it; and who can blame them? In the Western world, the era of the eternal present ended only in the 17<sup>th</sup> century, when the epochal revolutions in European culture and society made it abundantly clear that things were, in fact, changing, and would continue to do so. After that, rationalist thinkers reckoned on only two paths for human culture: Either it could be dedicated to continual progress, as it was in the European nations that embraced the industrial revolution; or it could give in to tradition and stagnate in a long, dark night of superstition. In societies dedicated to progress, vultures are often thought as relics from a more primitive past when they were more important in the world. From this point of view, the disappearance of vultures, and of wild ecosystems in general, could only be an achievement; certainly not something to be lamented. And any people, any culture that shared food and space with vultures was liable to be labeled "primitive."

While journeying among Argentinean *gaucho* cowboys in the early 19<sup>th</sup> century, the British traveler Francis Head marveled at their simplicity and ignorance of the wider world, and was compelled to wonder "what people in England would say of a man who could neither read nor write, nor had ever seen three huts together." But he was then reminded that he was also ignorant about the ways of life on the South American pampas:

[T]he Gaucho pointed to the sky, and said, "See! There is a [mountain] lion!" I started from my reverie, and strained my eyes, but to no purpose, until he showed me at last, very high in the air, a number of large vultures, which were hovering without moving; and he told me they were there because there was a lion devouring some carcass, and that he had driven them away from it.<sup>[134]</sup>

Similar knowledge of the significance of vultures was (and sometimes is) still found among people who dwell among the birds, but easy familiarity with grotesque carrion birds is more likely to be disparaged than appreciated by outsiders. Abel Chapman and Walter J. Buck adopted this approach when writing about the conditions in rural 19<sup>th</sup>-century Spain, where

overhead, on heavy wing, soared the vultures. What a curious commentary on the state of a country are such hordes of huge carrion-feeders, and how eloquently does their presence attest a backward and listless condition in the lands they inhabit! In Spain, it is true, vultures serve a useful office as scavengers; yet in modern Europe they surely seem an anachronism.

Chapman and Buck speculated that the prevalence of vultures was "due as much to the physical conditions" of Spain as to "the apathy of the Spanish people," but then switched to an economic argument:

Among nations more keenly imbued with commercial instincts, the flock-master takes care that his stock shall support themselves in order to support him. The daily, hourly losses which are implied in the supplementary support of hordes of huge flesh-eating birds, each as heavy as a Spanish sheep and voracious as a hyena, would simply put him out of the market, and eventually land him in bankruptcy.

But Spain cares nothing for modern ideas, and disdains to put herself about in the universal race for wealth. . . .

In short, they said, "the rudiments of modern system . . . are ignored." As a result, the livestock of the Spaniards died in great numbers; so, "Small wonder the great bare-necked scavengers of Nature increase and flourish."<sup>[135]</sup>

Along with Russia, Spain was the closest thing to a boondocks found in Victorian-era Europe, and as such poor *España* was the favored whipping girl for commentators from other European countries who wished to trumpet their own advancement at its expense. Since vultures were far more common in Spain than anywhere else in Europe, they could thus easily become symbols of backwardness in someone else's culture. Crown Prince Rudolf was the most notable proponent of this viewpoint; when pondering the abundance of Egyptian Vultures in Spain, he noted that aside from the "abundant food . . . almost daily afforded them by the dead domestic animals in the neighbourhood of human settlements and especially by the bodies of the murdered horses that are thrown outside of the towns after bull-fights," the Spanish people "take absolute pains to poison the air with smaller offal and dirt of all kinds; so that, owing to this total absence of cleanliness, it is easy for the vultures to carry on a sort of scavenge ring of the village streets every morning."<sup>[136]</sup> After observing the same vulture species in Egypt, Rudolf took this line of thinking to its logical conclusion, by applying it to another group of people who were oft-maligned in the Western world. He declared:

The Egyptian Vulture is the bird of Islam, for its way of living adapts itself to that of the Mohammedans. Where the Crescent still holds sway, there it is also at home; and where, as in Spain, the Orientals once dwelt, and only their vices and none of their many virtues remain as a remembrance of better days, there also the Egyptian Vulture is in its true element.<sup>[137]</sup> [Translated by C. G. Danford]

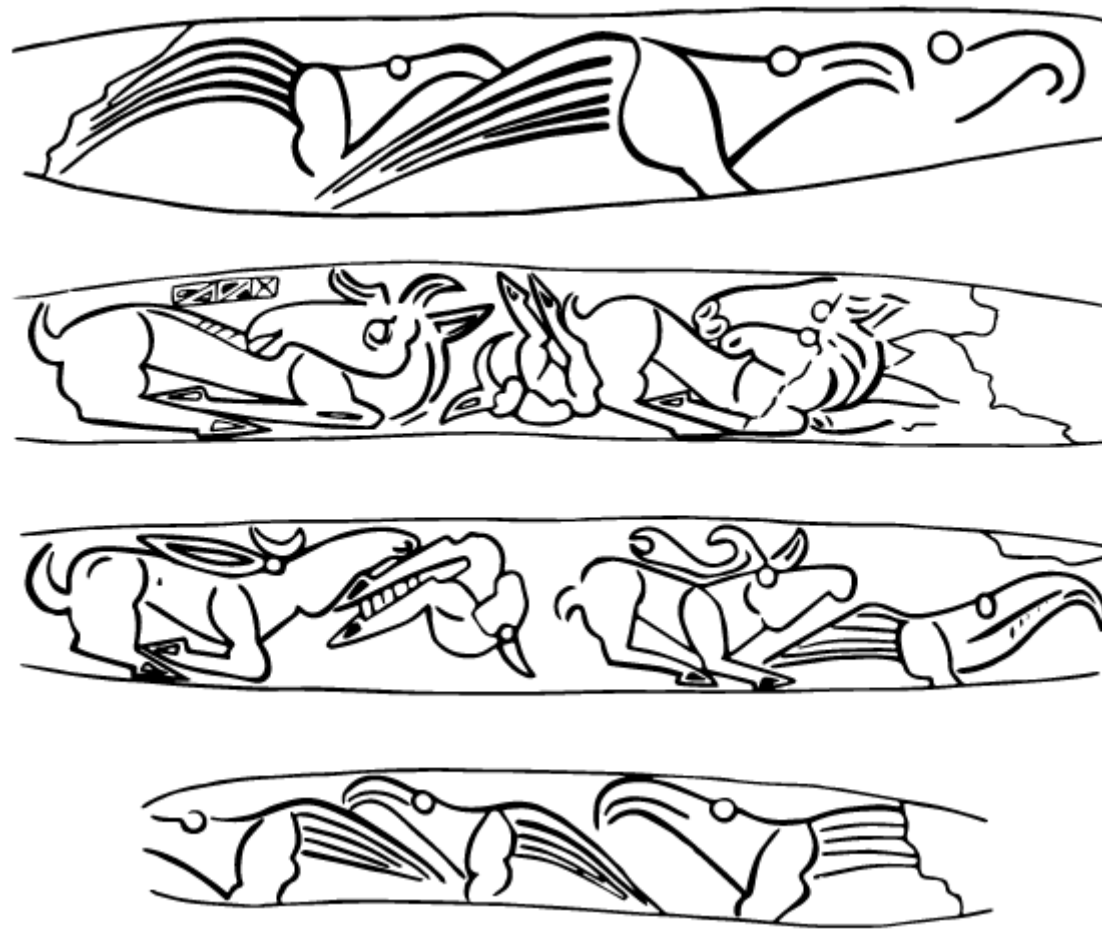
As we saw in [Chapter 8](#), a similar (though, in my estimation, fractionally less condescending) attitude came to the fore when people of the US encountered the vultures of Latin America, and also when Americans from the northern United States spoke of the vultures that inhabited the South of their own nation in such great numbers. Such parochial attitudes stem partly from xenophobia, the universal human tendency to view cultures other than one's own with suspicion and condescension, if not outright hostility. To many people, "foreign" means "unpleasant and dangerous"; and unpleasant and dangerous things can be made to seem much more so if vultures are present. Wars, droughts, pandemics, forbidding mountains, and trackless forests can all seem just a little more sinister than they already are with the addition of the carrion birds; and the inherent threat that vultures always seem to carry with them can be expanded to their favored situations and habitats, as well.

Among the artifacts found at an archaeological dig in Tatarstan, Russia are a series of four metallic plates, dating from the 7<sup>th</sup>-6<sup>th</sup> centuries BCE, that depict a number of extremely stylized raptorial birds in association with a family of Moose (known to most English-speakers in Eurasia as "Elk," but not to be confused with the North American Elk/Wapiti). After studying the plates ([left](#)), the Russian scholar B. A. Rybakov theorized that

a flock of steppe birds of prey, similar to vultures with enormous hypertrophied beaks, is attacking a herd (a family) of elk at the time female elk are giving birth, when the predators still have the hope of

carrying away the expected booty—newborn little elk. . . . in the middle stands the female elk with a young elk; near her behind is the newborn . . . who is shielded from the birds by a young elk, perhaps two years old, with small horns. On the right elk plate there is depicted one more young elk, covering with his snout the other newborn elk, who is hanging upside down. . . . At the right edge of the flock there is engraved the leader-elk, the only adult male elk in the entire group. With a jump he is driving off one of the vultures, forcing it to return to its flock.<sup>[138]</sup>

[Translated by Nicholas V. Riasanovsky]



There's no question about the identity of the Elk/Moose, which are clearly depicted on the plates with their characteristic rounded antlers and bulbous snouts. The identity of the highly stylized birds is less obvious; if they really were patterned after vultures, they were most likely Monk Vultures, which were once found throughout much of northern Eurasia, overlapping the range of the Moose, and are well-known as predators. Monks are certainly capable of attacking the young of large mammals - though I know of no eyewitness accounts of the Vultures ever seen attacking Moose, young or otherwise. Rybakov went to suggest that the scenes on the plates were intended to symbolize the contemporary conflict in northern Eurasia between steppe peoples, represented by the open-country vultures, and forest peoples (i.e., pre-Slavic people), represented by the woods-dwelling Moose; further, that the creator of the plates was one of the latter and self-identified with the Moose, because they were "obviously on their side rather than on that of the vultures." Many of his peers criticized these claims as overinterpretation of the evidence,<sup>[139]</sup> and as far as Monk Vultures are concerned, it isn't entirely accurate to describe them as exclusively steppe-dwelling creatures, for they, like the Moose, were once found in Eurasia's northern forests (and still are, in parts of Siberia). Besides which, these plates were thought to have been originally used to decorate a horseman's harness; and what animal is more characteristic of Eurasia's steppes than the Horse?

Free association of vultures with particular habitats is alive and well today, of course. In the Western world, vultures are popularly caricatured as inhabitants of deserts, to the extent that almost any work of modern fiction that takes place in a desert can be expected to include the birds in the



background. The stereotype is an odd one, because most vultures are not desert specialists; although many vultures will forage for food in deserts, only a few of the Old World species can really be said to prefer deserts to wetter habitats. Elsewhere in the world, vultures are often seen as fixtures or symbols of very different habitats. In Latin America, the King Vulture is one of the iconic denizens of the rainforest; and the Pondicherry Vulture is (or was) one of the most characteristic birds of the forests of South Asia. The Hooded Vulture, Egyptian Vulture, and Black Vulture are all fixtures of the raucous third world cities where they ply their trade; and of course no bird is more symbolic of the mountains of Eurasia and Africa than the Lammergeier. The Andean Condor is almost unique in that it's a characteristic animal of both the high mountains *and* the seashore; as the poet Pablo Neruda put it, the Condor was "born between the mountains and the ocean spray." In earlier times, other vultures may have shared that distinction – not least the California Condor, which was commonly observed feeding on beached sea mammals by early European explorers. In Europe, Lammergeiers once nested on cliffs overlooking the Mediterranean Sea, though they've long since been driven from the coasts by human disturbance.<sup>[140]</sup> A similar situation prevails for the vultures of Europe in general, now usually thought of as exclusively southern birds, although they've left their bones throughout much of northern Europe.

In the modern Western world, the image of one very specific encounter with vultures that takes place in one very particular habitat has surpassed all of the others, becoming so prevalent that it is instantly recognizable just about everywhere. Repeated endlessly in comics, cartoons, movies, television, and poetry, for many it is *the* default image that defines the relationship between human and vulture. This is it:

*A man crawls through the desert, with a vulture or vultures circling overhead.*

I'll admit that it doesn't look like much in print.

To understand the peculiar power and resilience of this image, we would have to understand both the environment and the situation that it depicts. Except for artificial environments that are created specifically for human use, deserts are the only ecosystems on Earth that are actually growing *larger* on a worldwide scale; and the continued trends of global warming, overgrazing, and diversion of natural water supplies for cities and agriculture ensure that the deserts will continue expanding for some time to come. This trend offers potentially great rewards to any animals able to inhabit the shifting sands. The desert is much less hospitable to humans ([below](#)); it can be outright lethal, a very sinister sort of lethality that is more insidious than that threatened by other habitats. A traveler lost in the mountains can, if all else fails, quickly end their misery by pitching themselves over a cliff; no such option is available in the desert. Endless sands offer no shelter and no place to hide from the prying eyes of vultures; a major drawback compared to, say, a forest, where one can at least shelter from the sky and its winged sentinels. And the crawling man of this image (as well as the viewers who are encouraged to empathize with him) is tormented with the uncertainty



of the situation: Will the vulture(s) attack, or merely wait for him to die? Do they know beyond all doubt that he will die, or do they merely suspect it? The idea of one of our own kind crawling through the most desolate environment imaginable, shadowed by the most terrifying creatures conceivable, does tend to endear itself to the human mind. The "vultures in the desert" image may reflect a widespread, subconscious fear that someday all that'll be left in a worldwide wasteland will be us, and the vultures; and the vultures will have the upper hand.

Although it's been nurtured and spread by the mythology of the American Wild West, the earliest roots of this image lie in the ancient Near East, where vultures and many other birds of prey were long thought of as inhabitants of the desolate regions of the world.<sup>[141]</sup> Not just because they fed on death, but also because they preferred to perch in dead trees, and because they largely avoided human habitation. In the Bible, the fall of Babylon and its resultant reclamation by the wild serves to drive home the horrors of desolation: "Babylon the Great is fallen, is fallen, and is become the habitation of devils, and the hold of every foul spirit, and a cage of every unclean and hateful bird." (John 18:1-2); furthermore, "There shall the vultures be gathered, every one with her mate." (John 34:15).<sup>[142]</sup>

And yet, vultures can also signify life, and not only in a metaphysical sense. To understand this, one need only read the accounts of travelers in West Africa, who have continually remarked that there was no surer sign of a nearby town or village than the presence of Hooded Vultures. We saw [in Chapter 10](#) that soldiers in wartime often used vultures to locate casualties, be they dead or alive. Field biologists attempting to study mammalian carnivores have frequently used vultures as guides to help them find their study subjects, as the birds commonly follow the carnivores when the latter are out hunting and conspicuously gather at their kills,<sup>[143]</sup> and persons interested in trailing migratory herds of herbivores could similarly look to the accompanying vultures to locate their quarry. Vultures are beacons of life in landlocked wildernesses, just as seabirds are beacons of land on the open ocean. Besides, vultures are themselves alive, and a gathering of scores or hundreds of them represents a concentration of non-human life that is increasingly rare in the world today. As occupants of the top link of the food chain, they may not guarantee the health of an ecosystem, but they do at least ensure that the lower links still exist; there could be no vultures in genuinely ravaged areas devoid of large-scale life, as [recent events in Indochina and Europe](#) have amply demonstrated.<sup>[144]</sup> And humans can use vultures to find this life, which they can in turn use to keep themselves alive.

Way back [in Chapter 2](#), we observed that it was very likely that the first emotion kindled in humanity by vultures was fear, because the great scavengers looked like the predatory birds that humans had learned to regard with trepidation and dread. But, at some point, this fear came to be tinged with something else; call it hope, desire, or simple hunger. The far-seeing birds could see things that humans couldn't see, and, by implication, knew things that humans didn't know. The proto-humans who first understood this faced a choice: Should they fear the vultures, dreading what the birds might lead them to? Or should they allow hope to rule the day, and trust in the vultures, as in fate itself, in the belief that better things would come of trailing the birds? For them, the choice was clear; fear is meaningless to someone on the verge of starvation. Ethologists call the behavior brought on by this condition *panic hunger*, and it is a powerful motivator. It can make predators attack prey that they would never otherwise consider, even though the prey might be difficult or impossible for them to kill and despite the fact that it may well kill *them* in the ensuing struggle. Panic hunger may even, on occasion, have caused vultures to attack live humans. Humans are certainly not immune to panic hunger; among them, the condition breaks down the ordinary rules, driving even the most civil and modernized persons to eat sawdust, excrement, cherished pets, and other people. When proto-

humans panicked by hunger sighted vultures in flight, they likely still feared the birds; yet the desire for food, for another day of life, and the hope that the vultures could find it and lead to it, was powerful enough to shunt that fear aside. For the human-vulture relationship to develop as it has - for it to exist at all - humans had to first overcome their fear of the vultures, and of the doom that the birds had long been thought to represent. This lesson seems to have been forgotten in most of the world.

Today, many humans find themselves gripped with genuine fear when vultures display even a passing interest in them. The birds represent what most people seem to hope is the past: a time when death stalked as a ceaseless predator and when every human could expect to be ultimately disposed of in the same manner as any other fallen animal; to be devoured, remolded, and elementally reborn as some other form of life. To be a human then carried with it an implicit understanding that, like it or not, one was a part of nature; a link in the food chain, a trophic level in the rhythmically ceaseless flow of energy, and just one more living thing on a planet with no shortage of them. To be a human now, in the emergent global culture, is to deny these things; a great many people alive today fervently wish to deny that the natural world and the mortality that derives from it are of any further importance to the future of humanity. There's nothing that a person in denial fears more than an unshakeable reminder of cold, hard reality.

In the end, this is the truest measure of what vultures really are in the human mind; despite all of the myths, all of the misconceptions, all of the weirdness and exaggerations and, dare I say, insanity. A vulture is nothing if not a strong dose of reality. Long may we partake of it.



# Chapter 12

## The Vulture Restaurant at The End of the World

Let's see if that damned gringo tells his last joke to the vulture of the sierra.

-Pancho Villa, after (reputedly) ordering the murder of his erstwhile confidant Ambrose Bierce, 1915

In his own nest, even the crow will pick the vulture's eyes.

-Russian proverb

Once upon a time, there was a wise old Turkey Vulture who found himself struck with a novel and unusual situation: He was falling in love. He had seen and learned much in his time on Earth, far more than most could ever hope to; but the strike of cupid's arrow was something that he had only dreamed of and was entirely unprepared for. And he had fallen for the unlikeliest of paramours; a beautiful yet vain young Dove. She was his exact opposite in every imaginable way - especially her physical appearance. When the Vulture thought about the Dove, he couldn't help but contrast her sleek, spotless alabaster feathers and delicate, graceful bill with his dark, battle-worn plumage, heavy wrinkled head and cumbersome, oft-bloodstained beak. He knew that few found him attractive, and that the Dove was unlikely to prove an exception; but, as they say, love conquers all, and knows no bounds. And so, one fine day he spruced himself up as best he could and set out to win the Dove's heart, as she had won his.

When he found her, her beauty so dazzled him that he couldn't speak; and, for a few moments, couldn't even move. He was so struck by her that he precariously wavered in his resolve; but then he gathered his courage, strode up to the Dove, and told her that he loved her. The Dove, shocked by such a declaration - and from such a creature! - replied, "What?! If you aren't playing an unfunny joke, buzzard, then you must be insane! Your love is as worthless as your own shabby, decrepit self, and I would no sooner return it than I would join you at your table." Still, he forged on, and asked the Dove to forgive him if he had frightened or offended her - but, he said, "I speak nothing but the truth. I have loved you for so long, and so deeply, that I can no longer think of anything but you. Please join me in marriage; or, failing that, in friendship."

The Dove, now more outraged than shocked, responded that he must be drunk; or had his last helping of rotten meat gone straight to his head? "I hate you," she said flatly. "I always have, and always will. Now go, before you anger me further; and never disturb me again." Then she turned away, pointedly refusing to acknowledge his presence any longer. No creature upon the green earth ever presented such a picture of abject sadness and dejection as the old Vulture did at that moment. He thought to himself that if the higher powers truly were as merciful as everyone believed, they would end his life there and then, so that he might suffer no more. Then he turned away and flew off, leaving the Dove to her vanity.

Many days passed, but despite this experience the Vulture's love for his improbable paramour never waned. It only grew stronger; and, as it did, a plan formed in his mind. Although the naked truth had failed to win the Dove's heart, perhaps it would do better if he dressed it up a bit. He washed all over, then carefully preened and arrayed his feathers, until his ruffed collar fell elegantly upon his hunched shoulders and the silver of his wings shone like the clearest light of a midsummer's full

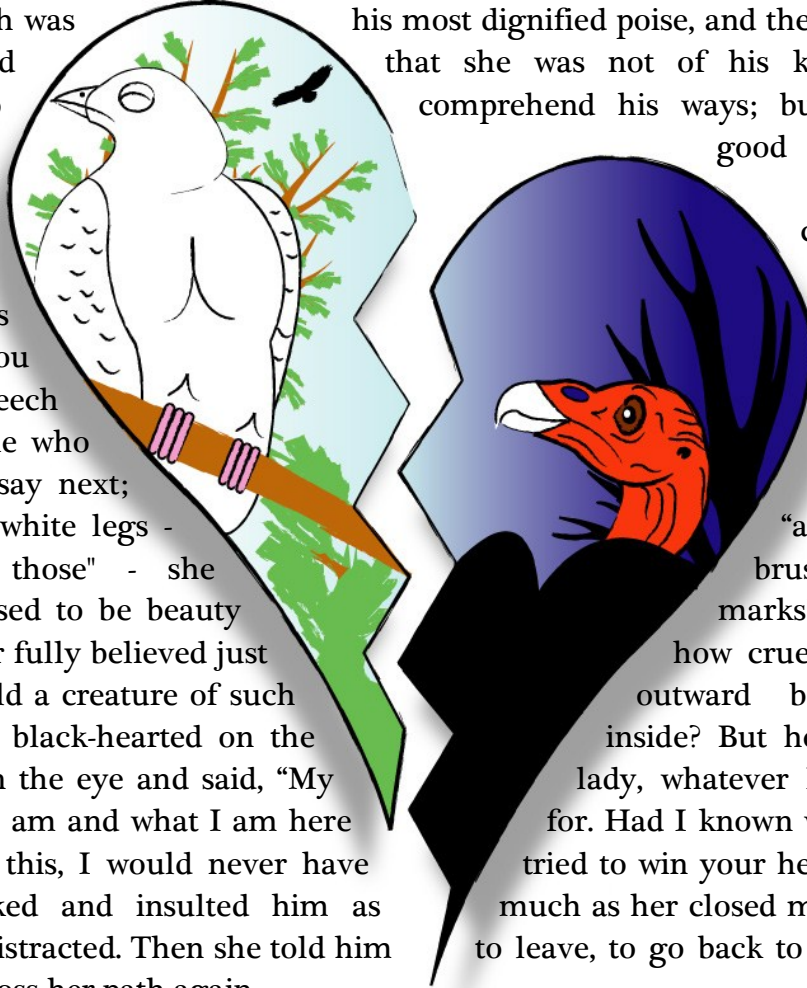
moon. And, to top it all off, he doused himself with expensive perfume. A more handsome and dignified vulture you never did see, as he set out once more, sure that *this* time fortune would favor the desires of his yearning heart.

He found the Dove again, and upon seeing her beauty he was almost able to forget how she had treated him the last time they had met. This time, he addressed her more formally, telling her once more that he still longer for her company. But she, as proud as ever, would hear none of it. "You are as stupid as ever, buzzard, and even more ridiculous than the last time that you dared to speak to me. To think that such words could come from the likes of you - just look at you! You stink of death, you hunch like a man broken by time, and you even walk like a cripple." The Vulture felt his eyes tear up at her reproof; and, though his voice trembled, he tried to explain himself to her. The stink was his

finest scent, the hunch was  
march. He understood  
expected to  
beyond them, to his  
his deep courage?

The Dove  
She merely laughed  
for all that he was  
eyes. "Buzzard, you  
when delivering a speech  
your lust for someone who  
you! What will you say next;  
pointed at his dusty white legs -  
stockings; or that those" - she  
his face - "are supposed to be beauty  
old Vulture had never fully believed just  
Dove really was. Could a creature of such  
gnarled, twisted, and black-hearted on the  
looked her directly in the eye and said, "My  
dignity. I know who I am and what I am here  
at the start of all of this, I would never have  
unmoved. She mocked and insulted him as  
she grew weary and distracted. Then she told him  
breed, and never to cross her path again.

his most dignified poise, and the walk was his stateliest  
that she was not of his kind, and couldn't be  
comprehend his ways; but could she not see  
good heart, his wise mind,



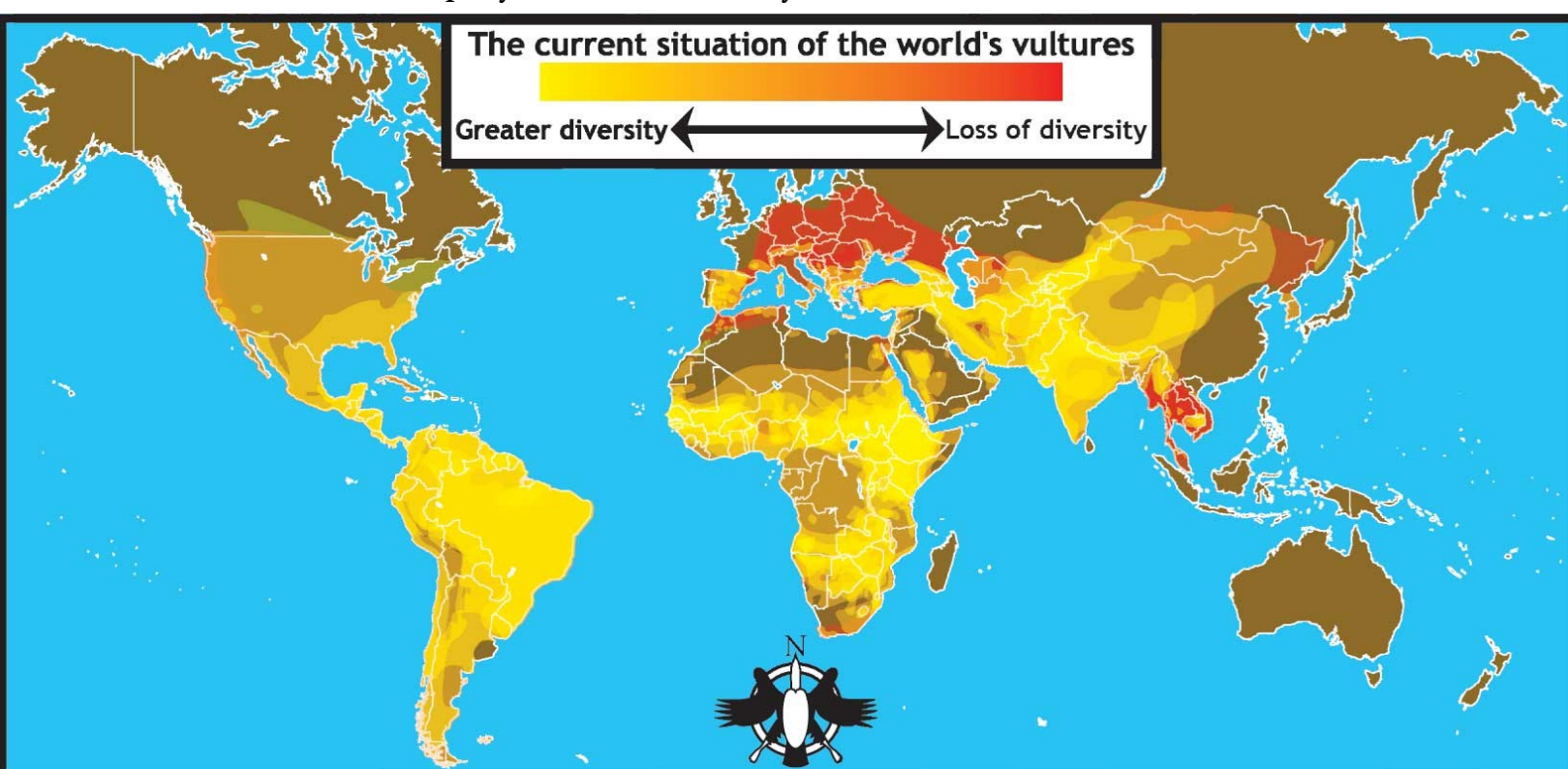
couldn't be bothered.  
at him, mocking him  
worth in her jaded  
sound even dumber  
than when declaring  
is far too good for  
that these" - she  
"are your most chic  
brushed at the warts on  
marks? Fool!" Until then, the  
how cruel and vain the young  
outward beauty truly be so  
inside? But he believed it now. He  
lady, whatever I may be, I have my  
for. Had I known who and what *you* are,  
tried to win your heart." But the Dove was  
much as her closed mind would allow, until  
to leave, to go back to his own filth-spawned

The Vulture stepped back, deep in thought, but didn't yet leave. He noticed with interest the arrival of some official-looking persons, carrying an official-looking plaque and medal with them. They loudly announced that they were there to give an award; an official recognition and commendation for a dedicated and selfless worker who had toiled long and hard to rid the world of pollution, offal, and garbage, and who had made life cleaner and more sanitary for one and all. "Recognition at last!" the Vulture thought to himself. Then the leader of the procession turned to the Dove and said, "My lady, we are all in your debt. This award is for you!" And he gave it to her. The Vulture watched the farcical ceremony from the shadows, but said nothing. He had worked all his life to combat pollution; he need only look at his worn-down claws and feel the scratches and scars upon his beak to remember that. And now someone who had never so much as dirtied her delicate bill with the filth of the world was being awarded for decades of his toil. He might have protested, but he knew

that no one would listen to him; and so he turned away with a sigh, and prepared to start the long journey home.

The Dove, on the other hand, was overjoyed at her unearned reward. She climbed into the highest branches of a tall tree so that everyone could see her, and applaud her. She basked up there, resplendent in the afternoon sun, soaking in the misplaced adulation of one and all - then there was a sudden swoosh, a hurried flapping of wings, and all that was left of her was a few feathers falling to the ground. A hawk had killed her. Those last few feathers drifted down slowly, wafting in a gentle breeze as if waving farewell to her spurned suitor. There was nothing that the Vulture or anyone else could do; it was all over in a moment, and then both hawk and Dove were long gone. Crestfallen, the old Vulture took to the air with slowly beating wings and sailed across the sky, weeping and thinking of what a fool he was. "Why not live like before," he said to himself, "Far from hatred and rancor, and free from these cruel tricks of fate?"<sup>[1]</sup>

This bittersweet tale, told by the Maya people of southern Mexico, can be thought of merely as one of the world's countless "beauty and beast" stories; but if you're in a more philosophical mood, it can also be read as an allegory of the vulture's present and future role in human society. This bald bird cleans up pollution of all kinds, yet seldom receives much recognition for its work; and often seems to long for company, yet is frequently rejected, mocked, and reviled. And the Dove? As a metaphor, she's certainly open to interpretation; and I interpret her as a symbol of the human-dominated world, as seen by vultures. That is, superficially attractive - the beauty of a vast and somewhat dependable food supply shouldn't be understated - but with some deep-seated and potentially ruinous problems. Dealing with the Dove too often means dealing with indifference at best, and outright hatred at worst. The price is always high; for some vultures, it's already proven to be too high to pay. The hawk, the *deus ex machina* of the story, might be the call of nature, or perhaps the latent but powerful desire to return to primal ways; to "live like before," as the Vulture put it. But this is where reality rudely overtakes the allegory, for living like before isn't an option for today's vultures. Whether either party likes it or not, they're stuck with us, and with a world that has been





radically altered by and for humans.

Vultures are large, conspicuous, slow to reproduce, perched at the top of their respective food chains, and thus relatively rare - all characteristics of animals that are most at risk of extinction from human actions. And yet, no species of vulture is known to have become extinct in recorded history, although many *populations* have been completely wiped out. Considering the abuse that has been inflicted upon the birds, this is a remarkable record, a fine testament both to the resilience of vultures and to the dedication of all who have worked to save them – and perhaps also a mute reminder that a third of the world's vultures were lost, at least partly from human actions, long before history began to be written. This record of survival is also astonishing, because the millennia since the end of the ice ages have been catastrophic for most animals, and especially for birds. Estimates of the total bird extinction toll during the past 10,000 years vary widely, with some authorities holding that as many as a fifth of all bird species have perished; but there is agreement that the birds were decimated more severely during that time than any other class of animals, and that decimation can be pinned solely upon the actions of humans. Though most of us would be loath to admit it, the likelihood is that in this day and age most animals view us as we've long viewed vultures: as unmistakable harbingers of death and destruction.

And even the vultures have good reason to see humans that way. Humans have been intentionally killing vultures for many thousands of years, and for no end of reasons. The ritual vulture killings practiced by many pre-industrial societies have probably had a greater impact upon the birds than is generally realized; they may have been partly to blame for the disappearance of the King Vulture from Florida, and very likely contributed to the decline of the California Condor in the centuries before European settlement of the American West. Over the past few centuries the worst effects have resulted from killing for sport, and from killing due to a perceived threat from the birds. Many vultures are prone to be persecuted as threats to livestock or, occasionally, even as threats to humans; this applies mainly to the larger vultures, such as the Lammergeier in Europe, the Monk Vulture in East Asia, and the Andean Condor in South America. Persecution remains a serious problem for the vultures as a whole, and for some species has been the single greatest threat to their continued existence.



The killing techniques used against vultures fall into three broad categories: shooting, poisoning, and trapping. Shooting, unlike the other two, is entirely target-specific and therefore not so indiscriminate, although it certainly looks as though decimation of vultures from shooting is an inevitable side effect of the ready availability and free use of firearms in much of the world. One need only peruse the outdoors-themed literature of the last couple of centuries to

understand that, for many if not most men armed with guns, the standard response to the appearance of a vulture or any other large bird in flight was to attempt to blast it out of the sky. Flying birds have been in danger from humans ever since hominids (or australopiths) learned how to throw stones, and much more so after the development of slings, bows and arrows, and bolas; but to kill a flying bird with these weapons required either incredible luck or real skill. Even the muzzle-loading smoothbore guns first developed in the 13<sup>th</sup> century weren't ideal bird-killing weapons, as a hunter armed with one was likely to get only one not-very-accurate shot at any quickly moving target.

The rapid-firing, breech-loading guns developed in the late 19th century were quite another matter. Requiring little skill or experience to use effectively, and restricted in volume and consistency of fire only by the need to periodically reload, their advent and immediate popularity spelled doom for tens of millions of birds. The impact of these weapons was especially well documented in the western US, where one gun merchant by the name of W. Lee Chambers was worried enough by their consequences to air his concerns in the ornithological journal *The Condor*. Chambers had been selling guns in Southern California since 1896, but he noticed a marked change in the market after 1898, when "many new high power rifles came out and the market was flooded with them." He wrote that, "Before the advent of these guns in so many models and patterns, hawks, owls, and other large birds were fairly safe and they were seldom molested." Afterwards, however, "It seemed that everyone who purchased a new high power rifle had to target shoot, and it was the common practice for purchasers to go out in the wilds and shoot everything until we noticed a decrease in the hawk and owl population." Many of the shot birds were brought to his shop for taxidermy, among them two of the already-rare California Condors.

Chambers provided a brief account of just how this destruction was effected:

Mr. Average Sportsman today buys a nice new, high-powered rifle. . . . On his trip out in the country on little-traveled highways he sights a hawk on a telephone wire and, although it is against the law to shoot from a public highway, he sees no one about and takes bead on the bird, which he generally shoots and leaves where it falls. If he drives off the highway to a sparsely inhabited country, he may spend an hour in one spot, shooting any bird that comes in range of his rifle. When this territory is exhausted he moves a few miles farther and repeats the slaughter. . . . The sporting goods dealers know this is a common Sunday sport and encourage it, although they know that thousands of protected birds are killed in this manner.

It comes as little surprise, then, that the California Biological Survey at the time "was of the opinion that the hunters would, if left the opportunity, eventually shoot everything which would fly within the range." Chambers warned that "the future of birdlife in this territory is doomed unless something is done to stop the tremendous slaughter. . . . Large sanctuaries offer the only positive protection, and outside them everything larger than a sparrow is destined for destruction."<sup>[2]</sup> Although that prediction proved to be a bit pessimistic for most birds, it certainly would have been true for the California Condor; there's no doubt that the species would be extinct today if sanctuaries hadn't been established in the early 20<sup>th</sup> century for the explicit purpose of protecting it. Some observers familiar with the Condor believed that the great numbers of veterans returning from World War II, most of them skilled in the use of guns and many eager to kill, played a major role in cutting down its population during the 1940s.<sup>[3]</sup> By the 1960s, Condors along with many other birds had learned to flee from cars that pulled to a stop with a clear line of sight, as shooting wildlife from parked cars was a common practice in remote areas.<sup>[4]</sup> Young vultures with little experience of humans were often easier to kill; museum collections of California Condors that were shot during the early 20th century contain a preponderance of birds in juvenile plumage, simply because these neophytes were more unwary

around humans than the wiser adults.<sup>[5]</sup> In situations like this, the proven abilities of vultures to recognize individual humans and to communicate amongst themselves probably saved many lives. In his *Ornithological Biographies*, John James Audubon wrote that both Black and Turkey Vultures "possess great power of recollection, so as to recognise at a great distance a person who has shot at them." He mentioned that the birds had quickly learned to avoid him after they had seen him trapping and shooting their kind; afterwards, they would fly away when he approached, although they paid no attention to the approach of other persons. Audubon thought that the vultures even took pains to avoid his horse after he had shot at them while riding it.<sup>[6]</sup>



Though vultures were usually hunted for the hunters' own amusement, some hunters were able to make a fair living from killing them and other raptors. From the 17th century well into the 20th, European governments often required professional hunters and foresters to kill a certain number of birds of prey every year. There was scarcely a township in Europe where an enterprising hunter couldn't get a small cash payment by turning in pairs of talons or the upper mandible of a hooked bill, proving that he had killed a raptor; governments typically made thousands of these payments per year. Some of these men, known in the literature as *eagle hunters*, specialized in killing large birds of prey, and any one of them had personally shot scores if not hundreds of vultures and eagles. The Alpine monastery of St. Bartolomeo near Salzburg, Austria once held a wooden tablet dating from 1650, upon which were engraved two life-sized Lammergeiers, that recorded for posterity the tolls exacted by such hunters. One, by the name of Hans Duxner, had personally killed 127 Lammergeiers; or so the records say, though there were probably some raptors of other species included in that total. Another had killed 43 of them (along with 25 bears), and his two sons had captured and condemned to lingering death 31 young

Lammergeiers.<sup>[7]</sup> Some early 20<sup>th</sup>-century hunters that killed Andean Condors along the Pacific Coast of South America may have topped even these figures; there are reports of a single hunter in Argentina shooting 114 Condors in a single day, and trapping more than 60 of them at a dead Horse. Since a hunter could receive the equivalent of \$10-\$20 for each of the wing and tail feathers of each Condor, it was possible to quickly amass a small fortune by slaughtering the birds. One hunter claimed to have killed 16,000 Condors in his career (!); almost certainly an exaggeration, to be sure,



but also a revealing admission of how little vulture hunters respected or cared about the birds that they blew out of the sky.<sup>[8]</sup>

Although it's clear that these hunters usually took their prey and its death for granted, even experienced hunters were occasionally surprised by the courage and grace exhibited by vultures under fire – and sometimes even after death. One European hunter who shot an American Turkey Vulture (with the time-honored rationale of killing it in order to see what it was) was surprised to see that although the bird had clearly been hit by his bullet, it gave no indication of being wounded. The Vulture continued to sail on the wind as strongly as before, with its wings spread and motionless; but after a time, it "began to descend in wide and regular circles, till finally, without a wingflap, it settled as lightly as a feather on the prairie, and remained motionless." Walking up to inspect it, he found it spread-eagled on the ground, its head resting gently on the grass. There was no way of telling how long it had been dead.<sup>[9]</sup>

The birds didn't always go so quietly; the larger vultures, in particular, were notorious among hunters for their tenacity of life. Anticipating his encounters with the biggest of Eurasia's vultures, the Monk Vulture, the avid hunter Crown Prince Rudolf of Austria wrote that it "was said to be so tough that [bird] shot had no effect whatever on its thick doublet of feathers," and so his only chance of killing one would be to load his guns with the same bullets normally used to kill large mammals.<sup>[10]</sup> The British hunters Abel Chapman and Walter Buck described what happened when they did attempt to kill a Spanish Monk Vulture with mere birdshot. Their hunt began with a shotgun blast "right for the monster's head," after which the vulture rolled over and fell to earth. But, they recorded with mounting astonishment, "those huge wings never ceased to work, and a second dose of slugs (on the ground) had no visible effect." After a few seconds of "spasmodic flapping" the vulture regained control and could be seen flying a mere yard or so above the ground. Almost a mile (1.6 km) later, it settled on the edge of a lake. The hunters followed it on horseback, and

there, within six yards [5.5 m], stretched out on the bare mud, lay our victim. His head lay prostrate, but his eye still brightly watched us. Hard and impervious to shot as I well knew these great raptorial birds to be, I was hardly prepared to see him rise again, and could not have believed what followed. Not only did he rise on the wing, but received two more charges of treble A - mould-shot big as peas - at a range of under twenty yards [18 m], without wincing, and after that, flew full 200 yards [183 m] before finally collapsing; then at last he fell, stone-dead.<sup>[11]</sup>

As a result of this and similar experiences, they concluded that "it seems all but impossible to kill these huge raptorial birds outright. Their hard muscular frames and sinews, tough as steel-wire, appear impervious to shot, and unless a pellet chances to take the wing-bone, they will go on, though struck in a dozen places."<sup>[12]</sup> While hunting similar-sized Himalayan Griffons in the mountains of northwestern China, the 19<sup>th</sup>-century Russian explorer Nikolai Prejevalsky found that, "Their tenacity of life is almost incredible: my companion and I once fired a dozen charges of slugs at a number of them only fifty paces off, without killing one" – though he added that, "They may be easily shot with ball."<sup>[13]</sup> The Swiss naturalist Johann Jakob von Tschudi discovered that the Andean Condor had an even more formidable reputation among hunters during the mid-19<sup>th</sup> century; he noted that "the natives . . . seldom attempt to shoot the condor" because the giant vulture was "seldom killed by fire-arms, unless when shot in some vital part." There was a widespread belief among earlier hunters that a ball fired from a musket would simply bounce off of the Condor's feathers; Tschudi deemed this an "absurdity . . . scarcely worthy of contradiction," even while admitting that "the bird has a singular tenacity of life. . . . Its plumage, particularly on the wings, is very strong and thick."<sup>[14]</sup> During his field

studies of Andean Condors in the 1960s, Jerry McGahan discovered that many Condors shot dead by Peruvian game wardens bore healed injuries from prior gunshot wounds – sometimes even broken wing bones, which are guaranteed fatal injuries for most birds. One notable male carried wounds indicating that he had been shot on least three different occasions before he was killed.<sup>[15]</sup> This legendary toughness doubtlessly (and thankfully, for the vultures) led to some disappointments and missed opportunities for the hunters. While on a hunting expedition in the Red Sea Mountains of Sudan in the early 20<sup>th</sup> century, Abel Chapman and his party only once sighted a Lammergeier, a “magnificent Raptorial whose existence we had hardly suspected in the Sudan.” This Lammergeier was lucky or wise enough to rarely approach the hunters’ hides closely enough for them to take a shot at it; and, complained Chapman, “such opportunities as it did vouchsafe caught the hapless hunter unawares and totally unarmed for such heavy game, for to tackle the great bearded apparition with a - 410 [a small-bore shotgun] would be the equivalent of a torpedo-boat challenging a superdreadnought.”<sup>[16]</sup>

Insufficient weaponry or lack of skill might lead to a vulture being badly wounded, but not killed, with the first shot, at which point it might well decide to take the fight back to the hunter. Judging from the literature, this was uncommon, but not unheard-of, particularly when hunting large and aggressive species. The very first Lappet-faced Vulture ever mentioned in European literature engaged in quite a struggle with its persecutors before it became part of history. Traveling in the interior of Africa during the 1780s, the French naturalist François Levaillant spotted a “superb vulture” of this species helping itself to a Hippopotamus carcass. He shot the vulture, but only succeeded in wounding it; due to the wound and the amount of food it had eaten, it was unable to fly away. Still, the bird “defended itself a long time with great intrepidity,” and in the end Levaillant and his companions were able to dispatch it only by beating it to death with the butt ends of their muskets.<sup>[17]</sup> The British hunter Willoughby Verner encountered another stout opponent in the form of a Eurasian Griffon when collecting vultures in Spain for the British Museum:

I had shot an old female from the top of a cliff as she left her nest and she fell into the scrub below. Upon going round to the foot of the cliff to pick her up . . . I suddenly came upon the poor bird lying in an open patch with a broken wing. The instant she saw me, she rose up and made one spring, and before I could parry her advance seized my arm near the shoulder in her powerful beak, tearing a hole in both coat and shirt and inflicting an unpleasant wound, and repeating the attack with great determination before I could dispatch her.

Verner stated that this was the only instance he had “seen or heard of a Griffon attacking a man and that was the case of a wounded bird and hence cannot fairly be reckoned as a genuine example.”<sup>[18]</sup> Nevertheless, it must be reckoned as an impressive display of strength and tenacity; few other creatures could sustain a broken limb from a gunshot wound, fall off of a cliff, and then still manage to put up a credible fight against a foe ten times their own weight.

While they added color to the hunters’ normally dry prose, these incidents were exceptional; in the vast majority of vulture hunts, the biggest challenge was simply to get within gunshot range of the birds. For most hunters, the solution was either to hide near an actively used nest or favorite perch of the birds, or to attempt to bait them with carrion and then place a hide nearby, from which the vultures could be shot when and if they showed up. Baiting a hunter’s hide with carrion seems simple enough, but as a hunting technique it left much to be desired. We’ve seen in the preceding pages that cultures throughout the world have frequently told stories of people playing dead in order to attract vultures, either to catch them or, in the more fantastic Old World stories, to be caught *by* them. Some

cultures, particularly those of the pre-Columbian Amerindians, practiced a form of baiting known as “pit-trapping,” in which a hunter would wait near a carcass in a pit covered with animal hide. When a vulture arrived and chanced to move within grabbing range, the hunter would lunge from the pit, grab the bird by the legs (avoiding its bill as much as possible), and restrain it. The vulture could then be either taken into captivity or killed; aside from grabbing vulture chicks from their nests, this seems to have been the most likely method for ancient people to capture live vultures. But pit-trapping was unpleasant, as the hunter had to sit near a rotting carcass and its attendant insects for hours on end; and it also could be dangerous if larger scavengers like wolves or bears showed up and inadvertently stumbled into the pit.

Fictional accounts of vulture baiting, such as that seen in the recent film *Goya's Ghosts*, tend to make it look absurdly easy, involving nothing more than dumping a carcass in a field and waiting a few minutes for the vultures to show up. In reality, it is well-nigh impossible to be certain that vultures will approach bait, especially if it's placed in an area where the birds are unaccustomed to feeding. The unwariness of grounded vultures that was proverbial to many of the ancients is a thing of the past in most of the world; even the Turkey and Black Vultures that have recently been recolonizing urban areas in the US tend to be much more skittish on the ground than in the air. One traveler to Sardinia in the 1870s noted that the local Eurasian Griffons were "far from bold, but are extremely shy and suspicious; and I have frequently seen them refuse to be attracted by the most tempting pieces of meat, after having soared round once or twice, and failed to satisfy themselves of the perfect safety of the locality."<sup>[19]</sup> Crown Prince Rudolf, who frequently baited vultures in attempts to coax them within gunshot range, wrote that to be reasonably sure of attracting the birds to a carcass,

one must expose it on some high position which is visible from afar, for they follow each other, and in a few minutes the enticing bait is detected and all of them plump down to the ground. The one thing to avoid is the laying out of the lure in a deep valley or any particularly low-lying spot, for the vultures like to have an open look-out during their feast, and fear being surprised in a moment of laziness and torpor after their gorge. [Translated by C. G. Danford]

By way of example, he mentioned that he and his companions had once left half a dozen horse carcasses in a deep Spanish valley, "but though there were nests all about, and the vultures made great sweeps round the place high in the air, they nevertheless resisted their gluttonous instincts and forbore to descend into the narrow ravine."<sup>[20]</sup>

Of course, the vulture hunters of the 19th century were far from the first to practice vulture-baiting; the underlying concept of attracting vultures to a certain place with strategically placed carrion is ancient beyond measure. It certainly dates back to the funerary rituals of Çatal Höyük, and





probably long before that, as there is much evidence that vultures were caught and killed by Late Pleistocene people for ritual purposes. But since the 1940s, when some enterprising individuals began to drag calf carcasses out to designated feeding spots for California Condors, the idea of leaving carrion out for vultures for no reason other than to provide them with supplemental food while observing the birds in action has taken hold around the world. Indeed, supplemental feeding at designated, continuously provisioned sites (popularly dubbed *vulture restaurants*) has come to be considered one of the most vital techniques for conserving and, especially, reintroducing vultures. Discussing vulture restaurants in his essay "The Effects of Altered Environments on Vultures," the biologist David Houston noted that for vultures:

The advantages of feeding stations are numerous. First, they provide additional food, and a reliable source that birds can depend upon. . . . Periods of plenty when vultures rarely need to visit a feeding station could be followed by periods of extreme food shortage when the feeding station may be vitally important in maintaining the birds in the area. . . .

The important feature of these sites is that the birds soon learn that they can rely on food being available there even if they may not always choose to take advantage of it, and it is known that there is seasonal variation in the use of feeding areas. But from some restaurant sites birds can obtain a substantial proportion of their total food requirements.

Additionally, if the normal foraging area of a local vulture population includes dangers like poisoned baits or lead-contaminated carcasses, regularly provisioned restaurants can encourage (though not force) the birds to restrict their daily searches for carrion to a smaller, safer area.<sup>[21]</sup> By the mid-1990s, vulture restaurants were being used to support both originally wild and newly reintroduced vultures in various parts of Europe, Israel, California, and southern Africa,<sup>[22]</sup> and the idea has since caught on in South America and Asia as well. In South Korea, it's reported that the small number of Monk Vultures that spend the winter there are now almost solely reliant on supplementary feeding.<sup>[23]</sup>

There isn't unanimous support for the restaurants, however. The discredited belief that vultures feeding on rotting carcasses can spread disease has proven stubborn, although there's no hard evidence that vulture restaurants play any role in spreading disease - not even in Western Europe, which at one point had over 50 active feeding stations. And there are still questions about the hygienic viability of leaving livestock carcasses out for the birds, which has led some governments to pass veterinary regulations that prohibit vulture restaurants.<sup>[24]</sup> More recently, there's been some doubt about the further use of restaurants, especially in Europe, over evidence that the antibiotics and other medications given to factory-farmed livestock many have adverse effects on the vultures that consume them.<sup>[25]</sup> There are also concerns about the effects of artificial feeding upon the behavior and self-sufficiency of the vultures, with some biologists regarding the use of restaurants as dubious except in cases of proven necessity. Others have noted that when thinking of ways to prop up declining vulture populations, it's important to study just what the causes of the decline are; if a lack of suitable nesting sites is the only factor, for example, supplemental feeding probably shouldn't be used.<sup>[26]</sup> But even if the vultures don't need them, restaurants can become popular tourist attractions; and some have, to the point where permanent hides have been constructed within easy viewing range of the feeding stations. As the birds become familiar with the restaurants, and at least somewhat habituated to the presence of humans, the stations also offer the double opportunity of familiarizing the public with the birds, and allowing researchers to study their behavior in a semi-controlled situation.

In South Africa, supplementary feeding was started for the Cape Griffons of the large Potberg colony in 1984, by placing a variety of domestic animal carcasses with their skins slit open at regularly used sites near the colony. These makeshift restaurants stirred interest in the local farming community, and after consulting with the biologists who had started the feeding, the farmers began to provide most of the carcasses for the restaurants. Aside from the value of the birds in preventing disease and notifying farmers of deaths among their stock, the vultures also provide farmers with additional income in the form of money spent by ecotourists.<sup>[27]</sup> The use of the restaurants has since been acknowledged as an integral part of the conservation plan for the Cape Griffons at Potberg, as the provided carcasses have been demonstrated to improve the survival rates of young Griffons that might otherwise starve.<sup>[28]</sup> Furthermore, the popularity of vulture restaurants in South Africa has now reached the point where advice about running these peculiar institutions is regularly published in free pamphlets and in the farmers' press.

The "restaurants" of the vulture hunters were rather more hastily and sloppily built, of course, and put to different uses. In the 19<sup>th</sup> century, the Russian explorer and hunter Nikolai Prejevalsky shot his way through the mountainous areas of northwestern China (in the present-day Qinghai and Gansu Provinces). In his account of his journey, *The Tangut Country, and the Solitudes of Northern Tibet*, he compiled what amounted to a step-by-step guide for baiting and shooting the local Himalayan Griffons or "Snow-vultures":

They may be easily shot with ball . . . if you will take up a position in ambush near some exposed food; but you must be careful to hide yourself, and your best plan is to select a small cave, and plant its entrance with bushes. The bait should be carrion, or any offal laid on a freshly drawn hide, and disposed about seventy paces from your place of concealment, to enable you to move at your ease without fear of startling the birds. It is of no use stationing yourself before eight or nine o'clock in the morning, when the vultures leave their eyries, and you should select the alpine belts of the mountains, to which they are more readily attracted than to the low valleys, where these cautious birds will sometimes absolutely refuse your bait, if any human habitations be near. The sport is full of interest.

Smaller scavengers like kites, magpies, crows, and ravens could all be expected to arrive first and squabble over the bait:

But where are the vultures? Perhaps they have by this time espied the feast and are circling high up among the clouds; but you cannot look up, and therefore cannot see them from your cave. . . . At length your patience is rewarded. A rustling of heavy wings is heard, and the snow-vulture perches on a rock beside the carrion. You are trembling with excitement, fearful of making the slightest noise by which you would frighten the wary bird away. In a little while he flies down to the ground, and, after sitting still for a few minutes, walks towards the prey, swaying his great body from side to side and hopping occasionally. In a moment the whole crew of feasters retires to make room for the giant, one solitary crow perhaps remaining on the opposite side of the carcass, but his behaviour is now more deferential. Greedily the hungry vulture begins swallowing the entrails or the meat; in another minute, however, a shot is heard and he falls lifeless on the spot. But if you defer your fire other vultures are sure to appear, and after the first one has cautiously descended the others alight directly on the meat, and sometimes a dozen or more will collect round a large carcass, and you may if you are fortunate secure two with one bullet.<sup>[29]</sup>  
[Translated by E. Delmar Morgan]

Some hunters were even more "fortunate" than that. In 1881, Crown Prince Rudolf described a situation when he baited vultures with a dead Donkey, in a ravine outside of Cairo, and had to build a hide in which the hunters could await their prey. The "hide" was merely the entrance of a small cave,

partially walled with stones that left loopholes for the hunters to sight and fire their guns. Unusually, Rudolf elected to take no active part in the shooting (leaving it to his uncle, the Grand Duke of Tuscany), and merely watched the proceedings from a quarry far enough away to avoid spooking the birds. It was a long wait before any birds showed up. The first were smaller scavengers, Ravens and Black Kites; then Egyptian Vultures, which as the "time was passing so tediously," Rudolf "recommended my uncle to shoot, as he had never killed one of these birds. No sooner said than done; and after the smoke had rolled down the valley, I hastened to the spot where the bird lay, and descended to the quarry with the very unsavory spoil." After another fifteen minutes, some Eurasian Griffons began to gather

with slow beats of their wings they came sweeping round the mountaintop one after another, until more than sixty had gathered in the air. Then came the exciting moment when the leading bird folded its wings and plunged into the ravine; for at this signal all the others followed suit, and like an avalanche of stones, vulture after vulture came hurtling down from the dizzy heights.

But the last of the Griffons had hardly reached the ground when a gunshot rang out, resulting in "a swift dispersion and wild disorder in the ranks of the great birds." Rudolf jealously wrote that his uncle "had killed at a single shot five enormous vultures, having taken them just at the moment when their heads were all huddled together over the carcass; and as this great heap of birds was now lying in the little battery, one may imagine what a horrible stench pervaded that confined space." Although the surviving "greedy birds of prey" circled over the ravine for another half hour, they refused to take the bait again; and so with their servants waiting elsewhere, it was left to the Crown Prince and the Grand Duke to undertake "the troublesome and unsavory task of carrying the heavy booty on our backs down the difficult path."<sup>[30]</sup>

When reading Prince Rudolf's blood-soaked memoirs, it should perhaps be borne in mind that his contemporaries considered him to be relatively genteel in his attitudes towards birds, at least when compared to the rest of the hunting nobility. In a personal letter, one of his friends had once written to him that, "In you the ornithologist's heart beats stronger than the hunter's." If so, it was a rather black heart; this was a man who boasted of pointlessly slaughtering an entire brood of four young Ravens near their nest because the "stupid clumsy creatures made no use of their well-developed wings,"<sup>[31]</sup> and who was well pleased that in Egypt he and his trigger-happy cronies "had the pleasure of giving a lesson to birds which had not become the least shy of the devices of Europeans."<sup>[32]</sup> Still, it must be said that until the mid-20th century the memoirs of vulture hunters were among the most accurate written accounts of wild vulture behavior to be found anywhere; certainly they were the only European-penned descriptions of vultures that, at times, approached something like objectivity. Many of the hunters - particularly those, like Rudolf, of an aristocratic bent - found it difficult to let go of the ubiquitous predator-over-scavenger and eagle-over-vulture biases, but some of them did manage to do so. And just occasionally, when faced with a particularly magnificent vulture, a hunter might decide *not* to pull the trigger.

In his book *My Life Among the Wild Birds in Spain*, the hunter Willoughby Verner recounted how he "was wandering about a low sierra" on "a glorious day in early spring." When he arrived at the summit of the hills, he searched the skies with a looking-glass until he chanced to see a Lammergeier, more than a mile (1.6 km) away, flying directly towards his position. A quick glance around revealed no shelter where he could hide from the piercing eyes of the bird, so he simply remained motionless and the Lammergeier continued on its steady course, apparently unaware of Verner's presence.



Soon the bird was within gunshot range. Verner recounted that

in another instant he would be assuredly mine and at that time, be it remembered, I was most anxious to kill one! Now for the first time in my life did I realize what an extraordinarily handsome bird it is, the fierce-looking head with silvered crown and black "moustaches," as well as the bristly black beard, contrasting with the rich red throat and breast, as with sweeping black pinions it came right at me.

The Lammergeier seemed to be flying towards a crag a few feet above Verner; yet still it either didn't see him or it simply paid him no attention. Finally, when it had approached to a mere 20 yards (18 m) away, Verner sprang up and aimed his gun. Transfixed by the "savage hook of its pale orange eyes," Verner stood with his finger on the trigger as the bird at last saw him, "suddenly checked its flight and, swinging round with a rush of wings resembling the noise produced by a steam jet, whirled away." But, Verner recalled, "*I did not fire!*"

"Somehow," he wrote, "it seemed to be almost murder to take that splendid life, and although my finger was on the trigger and the bird covered at less than 25 yards, after it had turned, I refrained." Although a dead Lammergeier was the ultimate prize for any bird hunter of the early 20th century, Verner claimed to have never regretted his self-control on that day; furthermore, since this experience he had encountered a number of Lammergeiers within easy range, and he never shot at any of them. He mused, "I sometimes think that before I migrate myself, I may be led to slaughter just one, as something to keep me in mind, when I am no longer able to visit their haunts, of these truly glorious birds. But so far I have resisted the temptation."<sup>[33]</sup> Whether he managed to resist the temptation to the end of his life, I unfortunately don't know.

Killing of vultures specifically for food, rather than for bragging rights or ritual purposes, is comparatively rare in most of the world; the prospect of eating a bird that habitually eats rotting meat just isn't appealing to most people, for some reason. Hooded Vultures are sometimes killed for food in Africa, but their meat is usually deliberately mislabeled as "chicken" when it's sold in markets. The Banda people of coastal Andhra Pradesh, in southeastern India, were known to eat the eggs and chicks of Indian Griffons and reportedly had a tradition of catching adult Griffons with special nets, though this tradition effectively ceased when the vultures stopped breeding in the area after 1980. Elsewhere in India, certain ethnic groups are reported to catch vultures in order to eat them on festival days.<sup>[34]</sup> For most Indians, vulture meat was disdained and to be consumed only by the lowest castes; and even among them, it was hardly a favored food. The islanders of Crete in the Mediterranean used to make a habit of snatching Eurasian Griffon chicks from their nests, claiming that the young vultures were as delicious as young chickens. However, they refused to eat adult Griffons, since the grown vultures fed on carrion.<sup>[35]</sup> More frequently, vultures have been killed not because they were considered tasty or nutritious, but because their flesh (or certain portions of it) was thought to have medicinal or supernatural properties. Throughout the Americas, Turkey Vultures and King Vultures have been eaten to cure conditions ranging from ulcers to rheumatism to "decayed nature." Some persons in northern Mexico may still eat the meat of Black Vultures, as it's popularly believed to cure epilepsy.<sup>[36]</sup> How anyone could think that ingesting the flesh of such a manic, unpredictable bird might improve that condition, I have no idea.

Even in areas where vultures were generally disdained, it was comparatively rare for them to be victims of deliberate and organized slaughter, as they were neither very useful for food nor usually considered to be much of a threat to livestock, at least when compared to mammalian predators. But the birds had the bad luck of sharing the fate of the megafauna, the large mammals that once dominated many of the world's ecosystems. Vultures often depend on large herbivores for food, and

they share this food supply with the mammalian predators that are so often killed due to real or perceived predation on domestic animals. As almost all of these mammalian predators are also scavengers, they can relatively easily be killed with poisoned carcasses; but not as easily as can the vultures, which are far more efficient discoverers of carrion, poisoned or otherwise, than any mammals. Poisoning is, by far, the most indiscriminate method for killing vultures, which goes a long way towards explaining why it has almost certainly killed more vultures over the last few centuries than hunting and trapping combined. Except in cases where vultures were deliberately targeted in retaliation for alleged livestock predation (or, in the case of the Lammergeier in Europe, alleged infant predation), vulture poisonings were typically spillovers from the intended targets of the poison. Mammalian carnivores of fox size or larger have been the targets of poisoning campaigns virtually everywhere in the world that they live side-by-side with humans. Poison is now a near-universal threat; the only vultures that remain unaffected by it are those living in areas too remote and unpopulated by humans for livestock losses to be of any concern.

Poisons aren't just indiscriminate, they're also extremely unpredictable in their effects. A given poison may have drastically differing effects upon two closely related species, and sometimes even on different age groups within a species.<sup>[37]</sup> New World vultures are widely, though inaccurately, reputed to be immune to poisons, due in no small part to their ability to immediately vomit any meal that disagrees with them in some way.<sup>[38]</sup> In North America, Turkey Vultures have been observed to eat ground squirrels that were killed with anticoagulant rodenticide without suffering any obvious ill effects, although Golden Eagles often died after scavenging the poisoned squirrels;<sup>[39]</sup> and the Turkeys also appear to be insensitive to the commonly used poison "Compound 1080" (sodium monofluoroacetate).<sup>[40]</sup> But it remains uncertain if this relative invulnerability is shared by other New World vultures, and it is quite certain that Old and New World vultures alike are vulnerable to poisons like strychnine, cyanide, and many chemical pesticides. Usage of such poisons against livestock predators involves dousing or injecting a carcass with the chemicals, and then leaving it in a likely place to be found by the carnivores. The adaptations of vultures that allow them to outcompete the mammalian carnivores as scavengers - their great speed and mobility, and their ability to gather in huge numbers - have proved to be extremely dangerous in the face of this threat. During the first half of the 20th century, it was a common practice throughout Europe to lay out strychnine-laced baits for Wolves and Red Foxes, especially during the winter; but since vultures often found the baits long before the mammals did, they were victimized at least as often as the intended targets.<sup>[41]</sup> Even if the mammals reached the bait first, vultures could be killed through secondary poisoning, by eating the now-contaminated corpses of the carnivores.<sup>[42]</sup> Poisoned baits could easily attract and kill vultures from a radius of many miles, which explains why the birds vanished even from areas where poisoning campaigns were rare or unknown. Poisoning is presently one of the most important killers of vultures in Africa, particularly in East Africa, where it's a common practice for farmers and ranchers to target Spotted Hyenas with pesticide-laced carcasses. It's though that the Rüppell's Griffons and White-backed Vultures in the area are now deliberately avoiding non-protected areas of habitat, as they've learned that many of the carcasses found there are poisoned.<sup>[43]</sup>

Trapping vultures is often almost as easy as poisoning them; and, as with poisoned baits, vultures are often caught in traps that were intended for different prey. When studying mammals along the Colorado River, the biologist Joseph Grinnell wrote that he and his fellow researchers were "continually bothered in our mammal trapping" by Turkey Vultures. They used steel leghold traps baited with meat in attempts to catch local carnivores; and "no matter how far back under thick bushes these were placed . . . so concealing the setting from view, the turkey buzzards were almost

certain to get caught." A total of two dozen Vultures were unintentionally captured by the trappers, and "being seldom severely injured, were usually released."<sup>[44]</sup> Still, trapping is more target-specific than poisoning; although vultures may be caught in traps set for other animals, the vast majority of birds killed by this method were deliberately targeted. Traps were most commonly used to kill vultures by farmers and ranchers who were convinced that the birds were threats to their livestock. One of the most detailed and intensive studies of vulture killing was made by Paul W. Parmalee, and published in the October 1954 issue of the ornithological journal *Auk*. Interested in documenting the conflict between ranchers and vultures in Texas, Parmalee sent questionnaires to land owners who had built and used vulture traps in Texas. All who responded to the questionnaires specifically mentioned Black Vulture attacks on livestock and the possibility that the birds would pollute watering holes as reasons for killing the birds; some also still believed that vultures transmitted diseases to livestock. These non-migratory Texas vultures tended to stay in a local area year round, and they usually roosted on the same land where they fed on livestock carcasses - although attacks on live animals were usually only a seasonal problem at calving and lambing time. Some of the landowners in Parmalee's survey constructed traps with the intention of killing all of the vultures on their land, although others were content with reducing the local vulture population to what they considered a manageable level.

The traps themselves were simple constructions of wood and chicken wire, roughly cylindrical in shape and from 10 to 40 feet (3 to 12 m) in diameter and 4 to 6 feet (1.2 to 1.8 m) high, entirely enclosed except for a V-shaped opening through which the birds could enter. They were baited with the carcasses of both wild and domestic animals, as well as the offal freely available at any working ranch. Curiously, while Black Vultures were easily caught in these traps, apparently unable to exit the same way they entered, Turkey Vultures were not; few of the latter entered the traps, and those that did usually managed to find a way out. Once a substantial number of Black Vultures had been caught, they could either be left to die from thirst and starvation, or a low-paid migrant worker could be sent in to club them to death; the vulture carcasses were usually buried or burned. Some ranchers claimed that additional vultures could be lured into the trap by leaving a few previously-trapped vultures alive within it, even providing them with food and water to assuage the suspicions of their fellows. After an entire trapful of vultures had been caught and killed, any remaining vultures in the area were wary and often refused to enter any traps, although the birds still lingered in the vicinity.

A substantial majority of the landowners who answered to the effectiveness of their traps said that they worked well in alleviating the problem of livestock loss to vultures, but about a fifth considered that their attempts were either "doubtful" or entirely without effect. In Parmalee's words:

It is reasonable to assume that, when the livestock industry (primarily cattle and sheep raising) began to expand rapidly in Texas 35 or 40 years ago [c. 1910-1920], a larger source of food became available to the vultures. During the last few years there has been an apparent increase in the number of Black Vultures in a few of the southern states (especially Texas and Florida), and in local areas these birds have become quite numerous. With the increased vulture population the "demand" for food has become greater than the "supply," and consequently the birds have turned to preying on livestock more readily.

He also suggested that predation on livestock might be a manifestation of parental devotion on the Black Vultures' part; the tremendous amount of food required by young Vultures to survive might induce their parents to attack live prey, when they would normally scavenge instead.<sup>[45]</sup>

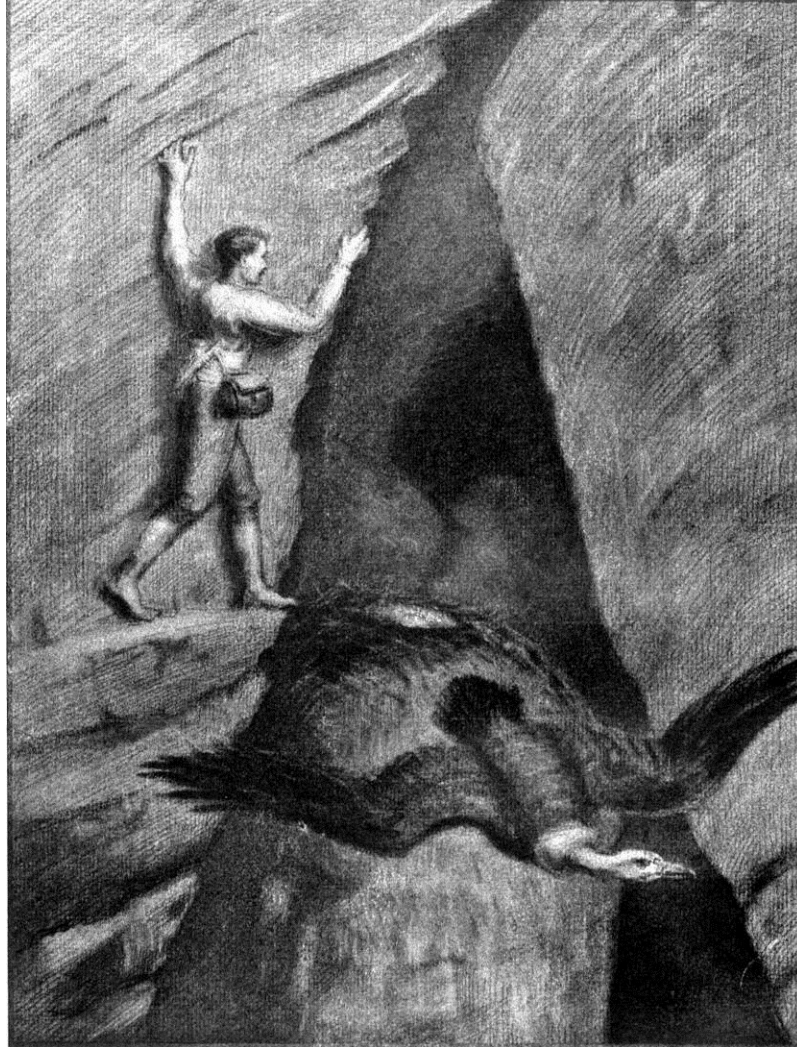
The practice of egg "collecting," which I prefer to call egg-stealing, was usually less harmful than the myriad forms of direct killing, but it could still put serious dents in vulture populations, or



prevent a stunted population from recovering its former numbers. Throughout the 19th and 20th centuries, egg-stealing was a veritable cottage industry for collectors around the world; eggs that were deemed especially beautiful or difficult to obtain were easily worth more than their weight in any precious metal you can name. Collecting was less of a hobby than an obsession, with many collectors possessing hundreds of eggs; one notable German collector is said to have been the recipient of literally *thousands* of Eurasian Griffon eggs, all taken from Spain.<sup>[46]</sup> The Egyptian Vulture's gold- and tan-flecked chocolate brown shells were especially prized; despite the abysmal reputation of the species among Europeans, many thought them the most attractive of all raptor eggs. Some egg-thieves even built special tools to aid them in pilfering from awkwardly located nests, including "nesting-sticks," mirrors that were attached to the ends of telescopic poles, allowing the collectors to scope out their prizes; and "landing-nets," used to scoop eggs out of nests.<sup>[47]</sup> There isn't much drama to found in stealing eggs from birds' nests, but there was more than usual when stealing from vultures - especially from the cliff-nesting species, whose nests could be dangerous to approach.

As vultures can normally lay replacement eggs if their clutches are lost early in the breeding season, their eggs could theoretically be stolen without any detriment to their numbers. Trouble was, the egg-thieves rarely took any care to avoid disturbing the birds, or to avoid damaging their nests, which require a great deal of time and effort for the birds to build. Some collectors did so deliberately; writing of the nests of the White-rumped Vulture of India, the British collector Stuart Baker mentioned, "Although they look as if very roughly and clumsily put together they stand a great deal of pulling about before breaking up."<sup>[48]</sup> Since the nests of vultures were often very difficult to find in the first place, once located a nest would likely be plundered for its eggs year after year. By the time the last pair of Egyptian Vultures on Swiss soil disappeared, around 1910, the birds had been under such incessant assault from collectors that over two decades had passed since they had been able to raise any young.<sup>[49]</sup> If a nest was discovered in an unusual situation - for instance, if a species of vulture that ordinarily nested on cliffs was discovered nesting in trees - the egg-thief would often shoot one or both of the nesting pair, in order to possess flesh-and-blood proof that his identification of the birds was correct. And if a nestling was discovered in place of an egg, it was typically carried off and sold to a zoo or animal dealer, whereupon it could expect to face a slow, lingering death from malnutrition and neglect - if the collector didn't kill it in a fit of rage first. Aside from the complete silence surrounding the harmful effects of egg-stealing, perhaps the most notable theme found in the literature of the collectors is the shock and outrage that they frequently expressed upon discovering young vultures in nests. One of the most famous collectors, Allan Hume, wrote of climbing to a colony of Indian Griffons (with the rather hyperbolic phrase "I laid siege to this natural fortress") and carefully creeping down to the lowest ledge where a nest was placed. He expected to find a prize shell there; but instead, to his "intense disgust," there "sat a huge unwieldy mass of yellow fluffy down, opening a vast mouth and hissing and cackling at me in the most hostile manner."<sup>[50]</sup> One can scarcely imagine the shock and horror that seethed in a collector's mind when, after going to much time and trouble to reach a vulture's nest, he was at last granted a glimpse into his long-sought objective - only to see, of all things, a *young vulture*. That's the kind of discovery that can make you lose faith in the world.

Like other large birds, vultures rarely put up any kind of defense against the collectors; they had long since learned that the best strategy to adopt when humans approached was to vacate the area ([right](#)), and not return until the interlopers were gone. Willoughby Verner wrote that on only one of his "many scores of visits to Griffons' nests did one of these birds even attempt to oppose my approach." During a foray in 1907, he was navigating ledges along a high cliff in Spain when he heard "a loud rustling sound which was repeated again and again." Turning a corner, he saw "an adult Griffon standing up over her nest which contained an egg, not 15 ft. [4.6 m] from me." As long as Verner stood still, "the great bird continued to strike a series of threatening attitudes, at intervals emitting a loud hissing sound much resembling an escape of steam." Every time he made a move away from the Griffon's nest, the vulture returned to her egg; but when he moved towards it, she would "rise again and hiss savagely". Eventually, the bird took to the air, but with Verner still near her nest "she sailed round the cliff at times passing close to me with a mighty swish of wings in a most threatening manner. At intervals she would alight on some pinnacle crag within 30 yards [27 m] of me and recommence hissing." Verner, who had robbed the nests of many other vultures and eagles without ever experiencing a reaction like this, attributed the unique fearlessness and pugnacity of this Griffon to "the fact that her stronghold was in a very remote sierra and in a position where she had probably never been approached save by some lad tending goats who would likely enough have been deterred by her threatening demeanour." He added that, "I had not the heart to take that egg and was pleased to see her return to it as I ascended the cliff."<sup>[51]</sup>



A rather more violent tale of a nest invasion was related by Johann Jakob von Tschudi, involving a "renowned chamois hunter" named Joseph Scherrer. During one of his many Alpine excursions, Scherrer climbed barefoot and gun-laden up to a Lammergeier nest, which he thought might contain young that could be captured and sold for a handsome profit. As the hunter approached, one of the adult Lammergeiers flew from the nest, only to be immediately shot and killed by Scherrer. When he neared the nest, the other adult "flew out upon him, making a terrible noise, and fixing her talons in his hips, and beating him with her wings, endeavoured to drive him over the precipice." Scherrer managed to hang on to the cliff with one hand and point his gun to the bird's breast with the other; then he pulled the trigger with his toe, killing the nest's last stalwart protector.<sup>[52]</sup> (There's no mention of the fate of the young birds, if there were any.) Fortunately for the collectors, this kind of steadfast defense was almost unheard-of. After stealing eggs and young from Lammergeiers in North Africa, Osbert Salvin wrote that, "None of the stories of the Lammergeyer defending its young against one so hardy as to assail its nest were ever realized . . . though their eyries were repeatedly scaled and their young taken, the old birds not only never offered an attack, but in all

cases either kept at a respectful distance, or never showed themselves at all."<sup>[53]</sup> In his *Nidification of Birds of the Indian Empire*, Stuart Baker wrote that despite the savage reputation of the Lammergeiers of the Himalayas, "The birds are awful cowards and never attack anybody and seldom make any demonstration of any kind" when their nests were being plundered - "but it must be rather terrifying to a man sitting in a loop at the end of a long rope, many feet down a precipice, to have one of these huge birds sweep close past him."<sup>[54]</sup> Occupational hazards, I suppose.

There is probably no place in the world where vultures are *never* harassed and persecuted by humans, but in some societies the birds have been afforded a certain level of protection by cultural traditions. The benefits of such traditions for the birds are obvious; one need only compare the relative success (until recently) of the traditionally protected vultures of Tibet or West Africa to the steady decline (again, until recently) of the unprotected vultures of Europe or western North America to understand how important they can be. Even on a local level, differing attitudes towards the birds can drastically affect both their survival and their behavior. One might get the impression that in industrialized nations, attitudes towards vultures are a matter of urban sentimentality versus rural brutality, but it isn't always that simple. In rural Greece, attitudes towards vultures tend to be either positive or indifferent, and either way there isn't much deliberate persecution of the birds. Hunters from the big cities like Athens, on the other hand, couldn't care less about local attitudes and usually shoot everything that wanders into their sights. Despite varying amounts of legal protection for the birds, vultures are routinely brought to taxidermists in Athens, to be stuffed and mounted as trophies signifying triumph over the wild.

Though not as durable as cultural traditions, legal protection can also be of great help to vultures. Unfortunately, it's a rare law intended to protect wildlife that doesn't contain loopholes or exceptions of some kind. Although vultures are now protected by law throughout North America, there is still periodic government-sanctioned killing of the birds, usually in response to reported Black Vulture predation of domestic animals. As both the Black and Turkey Vultures have also started to recolonize urban areas in the US after being largely forced out of them during the early 20th century, there are also not-infrequent requests for government permits to disperse the birds from areas where they're considered a nuisance, by using noisemakers, firecrackers, and the like to frighten them off. There has been ethical progress, of a sort, as it seems even those who avidly dislike the vultures would mostly rather drive them away via non-lethal means than risk public opprobrium by shooting them.<sup>[55]</sup> In much of the world, protection laws have been applied only to certain raptor species, rather than to birds of prey in general, and their value was dubious. In Europe, many hunters couldn't or wouldn't distinguish between, for instance, a Lammergeier and a Golden Eagle, even though the former might be protected and the latter might be legal prey; and in any case, at large organized hunts the hunters were often told that they could shoot any bird with a hooked bill.<sup>[56]</sup> Governmental organizations also often worked at cross purposes when it came to wildlife, with one branch encouraging protection and another encouraging unrestricted hunting. The most curious example of this must come from Spain, where at the end of the 1960s the office of tourism placed ads in French newspapers and magazines inviting their readers to travel to the Spanish sierras and engage in the leisurely activity of shooting vultures and eagles - despite the fact that all raptors had been officially protected from hunting in Spain since 1966.<sup>[57]</sup>

Still, with the decline of traditional mores in much of the world, legal protection was all that vultures and other animals could hope for. It's no coincidence that the modern period in which the birds suffered their second-greatest decline, the 19th century and the first half of the 20th century, coincided with the era after industrialism and modern thinking had swept away old traditions of



respect for nature and wildlife, but before much of an ecological consciousness had developed anywhere in the world. If vultures were legally protected during this period, it was usually only because they had proved themselves genuinely useful, as Black and Turkey Vultures had in the southern US. During the late 19th century, the killing of one of these birds was punishable by a fine of as much as five dollars in some cities; meanwhile, in rural California, a much rarer California Condor could be killed and sold with no repercussions whatsoever. And there was (and, to a large extent, still is) a blind spot in vulture protection laws: they didn't address habitat. As a cause of vulturine decline, habitat destruction may be less dramatic than shooting or poisoning, but it is more insidious, and over the long term may be far more damaging, since habitat lost to development is rarely regained. Vultures are somewhat less prone to extirpation from human development than many other animals, especially their mammalian competitors, because their powers of flight enable them to traverse many different kinds of terrain in search of food - although built-up urban areas are scrupulously avoided by most large vultures. Before the rampant urbanization of the industrial age, habitat destruction seems to have been a significant cause of vulturine decline only when the birds' nesting sites were occupied or destroyed and alternative sites were unavailable.

Development may provide a less tangible reason for the decline of some vulture species; namely, that they simply don't like humans, or rather all of the noise, commotion, and general disturbance that inevitably accompanies the naked apes. The majority of vultures seem to be tolerant of human presence as long as sufficient food and nesting sites remain; but others will not only desert their nests when people move in, but will flee to the nearest wild area, leaving all traces of humanity behind. It isn't known to what extent this trait is instinctive or learned, but it certainly is much more prevalent in some species than others. The two most colorful vulture species, the White-headed Vulture of Africa and the King Vulture of Latin America, are exemplars of what German biologists would call *kulturflüchtern*, "fleers from civilization." They usually go well out of their way to avoid any kind of human disturbance, even if it would (theoretically) have the potential to benefit them. The few wild European Lammergeier populations that have survived to the present day are similarly sensitive to human disturbance, and in the Pyrenees of France they build their nests only on the least accessible cliffs, where human passersby are few and long between. A quiet testament to the explosion of Europe's human population is found in the many now-abandoned potholes and ledges that were once used by Lammergeiers.<sup>[58]</sup> At the opposite end of the Lammergeier's Eurasian range, in the mountains east of Lake Baikal, many Russian mining expeditions were staged during the 19th century in search of valuable topaz and beryl gemstones; and the older hunters among the indigenous Evenk people of the area believed that the local Lammergeiers were forced to desert their traditional breeding cliffs as a direct result of the disruption caused by the miners. By the end of the century, the Lammergeier was recorded to be extinct in the Dauria area of Transbaikalia, although the species had been observed there by a number of naturalists in preceding two centuries, and indeed was still known by name to the locals.<sup>[59]</sup> The detrimental effects of shyness particularly apply to the world's largest raptor, the Monk Vulture, which in Europe seems to have been hit at least as hard by human encroachment and destruction of its habitat as any other cause. As a result, the mainland European population of the species has been reduced to nothing but small remnants in the remoter parts of Spain, Greece, and the Balkans, and even the Greek population is still threatened by economic development.<sup>[60]</sup> In Bulgaria, Monk Vultures nest mainly in areas that contain no hint of human presence except for abandoned ghost villages, and these were occupied by the Vultures only as a final refuge, after the more suitable forests near the Greek border were felled during the 1980s.<sup>[61]</sup>

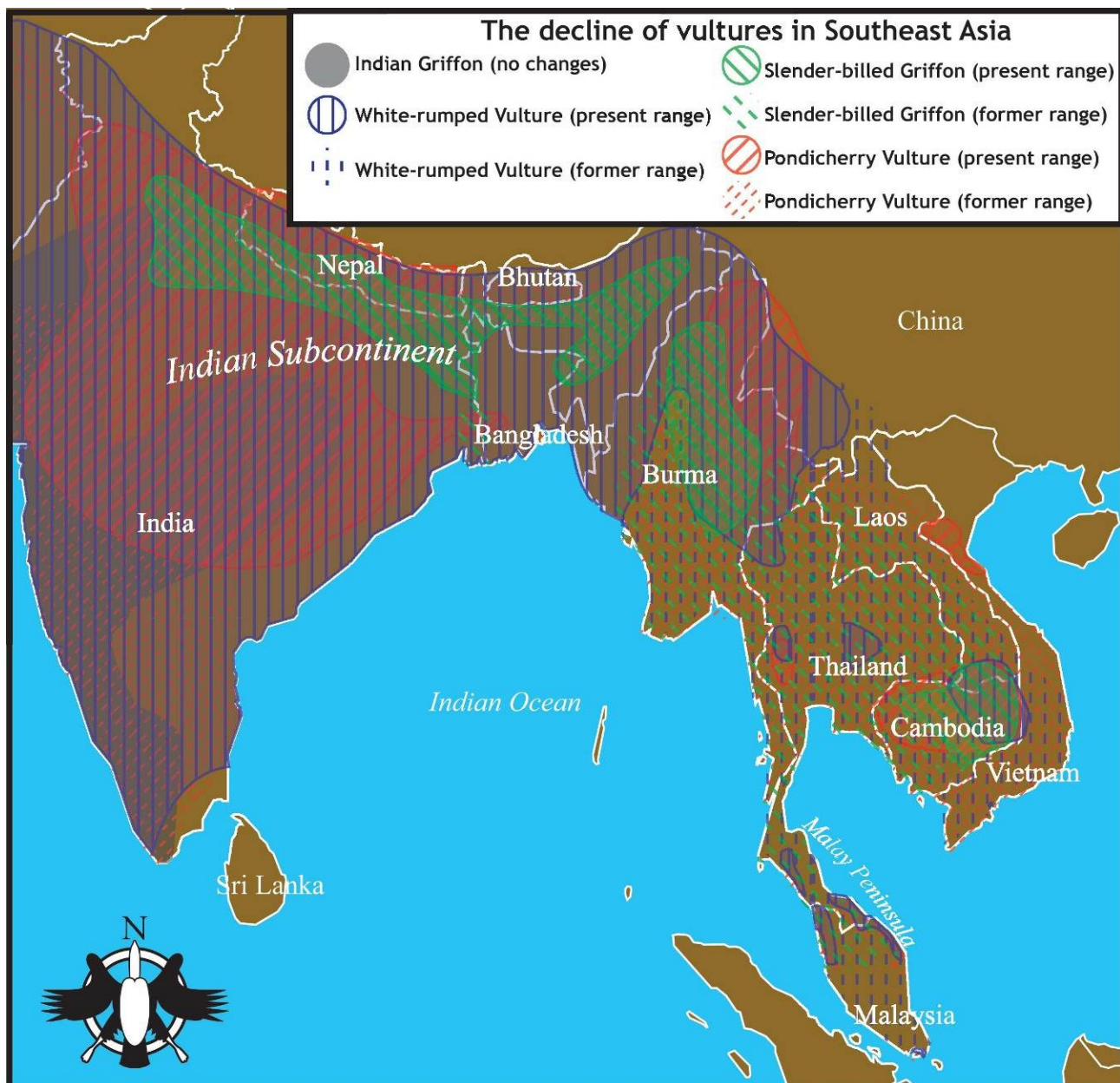
Given the overly simplistic modern perception of vultures as "eating machines," a lack of food would seem be the most obvious cause for the deterioration of any vulture population; but the unrivalled ability of vultures to find food wherever it exists has ensured that, in most historical cases, food supply wasn't much of a limiting factor for the birds. When it was, however, the effects were immediate and dramatic. From the end of World War II until the late 1960s, the government of Bulgaria completed a national transition from pastoral livestock-raising to communist-style collective agriculture, including supervision of all livestock by veterinarians. By the mid-1960s, well over half of all the carcasses of domestic animals that died in the field were collected for veterinary analysis and disposal, whereas they had once been left for scavengers. As their natural prey had vanished centuries ago, this change of habits ensured that the Eurasian Griffons of Bulgaria, solely dependent on livestock for food, would have to either starve or leave the country. Not all of the birds were able to take the latter option, as in the 1960s there were a number of reports of Bulgarian Griffons discovered grounded and nearly dead from exhaustion and starvation.<sup>[62]</sup>

The same lesson had to be learned all over again in the first decade of the 21st century, when fears over the potential spread of bovine spongiform encephalopathy (BSE) or "mad cow disease" led European governments to place severe restrictions upon the disposal of livestock carcasses, which were the main, if not only, source of food for most of the continent's vultures. At the beginning of 2001, the government of Spain passed a law requiring farmers to remove and incinerate all Cattle, Sheep, and Goat carcasses, regardless of whether or not they tested positive for the disease; two months later, the law was expanded to similarly restrict the disposal of dead Horses, Pigs, and poultry, though there was no clear evidence that these animals had any role in spreading BSE. Prior to this, farmers had been allowed to legally dump livestock carcasses in designated areas, which not only allowed the farmers to inexpensively dispose of waste, but also served as vulture restaurants that played an important part in feeding the birds. A number of Spanish ecologists and environmental groups urged the government to reconsider this law, because, as one scientist pointed out, "If their main food source is removed and no remedial action taken, populations will crash and decades of European efforts to conserve endangered birds will have been in vain."<sup>[63]</sup>

Predictably, the appeal was ignored; in fact, the law was expanded still further, and in 2002 the parliament of the European Union passed an equivalent law. As a direct result of the lack of carcasses, some Spanish Eurasian Griffon colonies declined in numbers by as much as 40%, and the production of young birds was halved.<sup>[64]</sup> Before long, reports began to pour in across Europe of starving vultures wandering far from their usual foraging areas in search of food. Some of the birds even entered urban areas; there were sightings of Spanish vultures as far north as Brussels, where one bird was seen perched on top of a bus shelter.<sup>[65]</sup> Of rather greater concern to farmers were increasingly frequent sightings of normally unpredatory Eurasian Griffons attacking and sometimes killing Cattle and Pigs in order to have something to eat. Farmers in northern Spain and southern France claimed that swarms of 150 to 200 Griffons were routinely seen circling low over animals in the fields, and that the vultures were "no longer afraid of men." Depending on which sources one chooses to believe, the animals that the Griffons attacked were either perfectly healthy beforehand, or "so badly injured that death was certain."<sup>[66]</sup> Regardless, government organizations in northern Spain received almost 1,200 reports of Griffons killing livestock from 2006 to 2010, resulting in €265,000 (\$350,000) being paid to farmers in compensation. Some farmers elected to deal with the threat of the Griffons by poisoning them, further harming populations that were already in decline from lack of food.<sup>[67]</sup> Repeated entreaties from both conservationists and farmers finally led the Spanish government and European parliament to modify the laws in early 2009, allowing farmers in Spain to again leave carcasses in

fields provided there was no evidence that they were diseased;<sup>[68]</sup> similar eased regulations were approved by the European Union in 2011.<sup>[69]</sup> The long-term effects of this parliamentary pileup remain to be seen.

The disappearance of vultures in much of Southeast Asia during the last 50 years provides the most striking example of what can happen when vultures are deprived of sustenance. Until the middle of the 20th century, the White-rumped Vulture and Slender-billed Griffon lived throughout the region, including most of Indochina, Burma, Thailand, Malaysia, and north into the Yunnan Province of China. By the end of the 20th century, both of these species were extinct almost everywhere east of India; the only remaining breeding populations in far Eastern Asia dwelled primarily in northern Cambodia, extending into Laos and Vietnam. The almost incessant warfare that took place in Indochina surely played a part in the vultures' declines, particularly during the involvement of the American armed forces in Vietnam, when destruction of the natural environment by way of carpet bombing and herbicides was an integral part of military strategy. Until the late 1960s, when the Vietnam War peaked in ferocity, White-rumped Vultures were common throughout South Vietnam; now the species is nonexistent there, except for occasional wanderers from





elsewhere.<sup>[70]</sup> However, the most important cause of this particular deterioration appears to have been not persecution or habitat loss, but a lack of food. Hunting of large mammals is entirely unregulated in most of the region, resulting in their extirpation from huge areas; and changes in farming practices mean that carcasses of domestic animals are often no longer left for scavengers. Vultures weren't the only birds in the region to be so badly affected; all other scavenging birds have also drastically declined. Laos still contains large areas of natural habitat that appear to be undisturbed by humans,<sup>[71]</sup> but most of the Laotian large mammals living in open habitats were hunted out of existence during the second half of the 20th century.<sup>[72]</sup> The resultant lack of carrion is so keenly felt that even crows are absent from large areas of the countryside.<sup>[73]</sup> In Cambodia, where the remaining vulture populations are centered, there is also low human population density and large areas of remaining wild habitat. Unlike Laos, Cambodia still has viable populations of large wild mammals, and livestock are still allowed to wander (and die) freely for much of the year, allowing the scavengers to continue plying their trade.<sup>[74]</sup>

Even in the most intensively studied regions, there remain question marks about the fates of some vultures. In North America, no one knows for certain what happened to the King Vultures of Florida, or why the population of California Condors living in the Pacific Northwest disappeared. In medieval and early Renaissance times, the large vultures of Europe were more widespread, and ranged much further north than they do today; yet these outlying populations seem to have vanished before there was a serious lack of food, before modern guns and poisons took a heavy toll of the birds, and before urbanization had destroyed much of their habitat. By the same token, it's rarely easy to determine just how vulnerable a population or species of vulture is to human disruption, or to predict what will happen when such disruption takes place. Still, there are noticeable trends in the vulnerability to humans of animals as a whole, which can be readily applied to vultures. Almost invariably, larger species are more at risk than smaller ones, and species with narrower and more specialized requirements for diet and habitat are more at risk than broad-based generalists. In both the Old World and the New, the smallest vultures, like the Black and the Hooded, have thrived as human populations have exploded; and the largest, like the California Condor and the Monk Vulture, have fared most poorly. The smaller vultures also tend to be the most generalized in terms of feeding habits (the Palmnut Vulture being a conspicuous exception); the most specialized of all vultures in its diet, the Lammergeier, is also one of the most vulnerable to human disruption, often being the first species to disappear when an ecosystem is disrupted.<sup>[75]</sup>

But we should be wary of generalizing, even about generalists. Egyptian Vultures are undoubtedly the most adaptable of all of Europe's vultures, and are less dependent on large mammals for food than are the other three species, which explains why the Egyptian still exists in some parts of Europe where all other vultures have long since vanished. Its migratory habits have also aided its survival, as strychnine-poisoned baits left for carnivores were placed primarily during the winter - which happened to be when most Egyptian Vultures were elsewhere, wintering on the southern shores of the Mediterranean Sea.<sup>[76]</sup> And yet, the species has still declined greatly in Europe during the past century or so. The reasons why are not certain, although suspicion falls on the North African countries across the Mediterranean, where guns are plentiful and wildlife protection (in either law or sentiment) is virtually nonexistent. North Africa has been described as a "black hole" for vultures, and for most other large wild animals;<sup>[77]</sup> travelers to Libya during the 1980s noted that the Libyans adhered to the credo of shooting "anything that moves" very literally. As a result, it was possible to spend years there, amidst much suitable vulture habitat, without ever seeing a single vulture.<sup>[78]</sup> Among the largest and slowest-breeding vultures, some populations are even more vulnerable to

humans than others. Most Andean Condors lay eggs on a fairly regular schedule of one every two years, but the condors inhabiting the barren deserts of coastal Peru can breed successfully only during or after the recurring El Niño climatic cycles, which average five years from one to another and may be spaced as long as twelve years apart. As a result of this low reproduction rate, the Condors are very close to minimum sustainability; the smallest additional mortality could push them over the edge into extinction. Not surprisingly, few coastal Condor populations have survived where they come into frequent contact with humans, because the great birds are almost always persecuted when that happens.<sup>[79]</sup>

Despite the continued abundance of civil vultures in some areas, vultures are largely in the same boat with most other large wild animals when it comes to their firsthand acquaintance with humanity; they're more familiar to most people in captivity than in the wild. Regardless of a given



society's expressed opinions about the birds, vultures have been popular in zoos and menageries everywhere that those institutions exist, and the possibility that a wild-caught vulture can be plausibly presented to credulous guests as a "man-eater" certainly doesn't hurt their notoriety. Vultures are thought to have been among the first animals kept in menageries in Europe and Asia,<sup>[80]</sup> and were commonly captured and held captive for ritual purposes in the pre-Columbian Americas. Upon reaching the Aztec capitol of Tenochtitlan in 1519, Hernan Cortés and his fellow conquistadors reportedly found a number of

vultures (specifics unprovided) kept among "all manner of birds of prey" in the House of the Hunting Birds that was maintained by the Aztec nobility for their own amusement;<sup>[81]</sup> at least until the conquistadors burned it down, incinerating its occupants in the process.

Like other birds, vultures are generally reckoned to be second-string animals in terms of popularity among visitors to modern zoos, trailing well behind mammals like the big carnivores, apes, and pachyderms. Exceptions to this rule have come only with vultures that appeared in zoos for the first time, such as the earliest Andean Condors that were imported to Europe during the 17th century. (As we saw [in Chapter 8](#), these birds made such a big splash that some Europeans were driven to scramble for evidence that Europe, too, had once harbored resident Condors.) Today, of course, there isn't much chance of any "new" vulture being discovered, and the viewing public would be far too jaded to go ga-ga over one anyway; but vultures of large size and spectacular appearance, such as the King Vulture and Lammergeier, can still attract crowds and prestige even in today's overstimulated world.

All vultures are rather low-maintenance animals that often live for decades in captivity, and the condors in particular can be expected to see many renovations and much staff turnover if properly cared for. The longevity record for an Andean Condor in captivity - indeed, for any captive vulture for

which adequate documentation exists - is posthumously held by Kuzya, a longtime denizen of the Moscow Zoo. He arrived at the zoo as an adult, and therefore at least eight years old, in 1892, and died in 1961, having spent 69 years at the zoo. His actual age was probably closer to 80.<sup>[82]</sup> At least two other Andean Condors definitely or probably became sexagenarians in captivity. One was given to Italy's Bioparco Roma by the nation's then-dictator, Benito Mussolini, in 1932. Despite the rather dubious circumstances of its arrival, this Condor lived until 1999; I won't even venture a guess as to how many Italian governments rose and fell during its lifetime. The other Condor resided at Zoo-Aquarium Madrid in Spain; and, though its arrival at the zoo was undocumented, it was thought to have been acquired sometime in the 1890s. Regardless of its actual age, the bird displayed impressive tenacity, as it was one of only 25 animals at the zoo to survive the devastation of the Spanish Civil War of 1936-39, and it lived on until 1962. The Condor was thought to have been well over 60 years old at the time of its death, although the lack of records from the zoo's early years cannot prove this.<sup>[83]</sup> Similarly, [the vultures of Kabul Zoo](#) are among the zoo's few original animals that have survived Afghanistan's interminable civil war to the present day, probably because they neither required regular feeding nor were considered to be edible themselves. (Though it's unclear if the birds survived by feeding on human corpses, as was reputedly the case for some of the zoo's mammalian carnivores.)

The record of zoos when breeding vultures, rather than merely keeping them alive, is not so impressive. Even in the worst zoos, vultures might reproduce if they were kept in fertile pairs; but until the late 20<sup>th</sup> century, the resulting chicks usually died because of inadequate knowledge of their nutritional needs. This particularly held true for Lammergeiers, because although a number of zoos in and out of Europe had pairs of the birds at the turn of the 20th century, any chicks that were produced almost always perished in a matter of days, probably due to osteodystrophy or other forms of malnutrition. Crown Prince Rudolf captured a number of young vultures and other birds of prey during his hunting expeditions, and had no difficulty in keeping them alive in his care; but after returning to Austria and placing the birds in zoos, he recalled, "the close sunless cages and the food of the Zoological Gardens soon finished off most of them." Wrote Rudolf, "young birds of prey in confinement can only be saved from certain death by a mixed diet of flesh and bones, with feathers or hair," but in many zoos they were "unhappily killed by being studiously fed with pure flesh, whereas they need other substances for the formation of bone."<sup>[84]</sup> In modern experiments, raptor chicks fed upon all-meat diets have developed rickets in as little as ten days.<sup>[85]</sup> Young vultures require astonishing amounts of food to survive; and unlike adults, their nutritional requirements aren't lessened by the lack of exertion inherent in captive life. In the wild, breeding pairs of griffons may need four times as much food as normal when raising a chick,<sup>[86]</sup> the fate of a captive chick whose parents were only supplied with their standard rations can thus easily be predicted.

Rather than ponder why vulture chicks usually died, we might wonder how the adult birds managed to find the *joie de vivre* to breed at all, for virtually all industrial-age zoos were bleak and cramped homes for their inhabitants. The cages in which vultures were kept were often so small that the larger species were unable to even fully spread their wings, let alone attempt to fly; and the enclosures were arranged strictly for the convenience of the attendants and visitors, not for the comfort of their occupants. If contemporary attitudes towards the birds were anything to go by, vultures in 19th-century zoos were routinely fed rotting, germ-infested meat in the mistaken belief that they preferred such fare, and even vultures of highly social species were most often kept alone or in pairs, because they were thought to be asocial like most birds of prey. One 19th-century observer described a European aviary for birds of prey in which the unfortunate captives





can never spread their wings, and all these birds, hungry for air and light, are permanently relegated to the back of a sort of dark cupboard; their plumage, never washed in the rain, cannot have that sharp cleanliness that is one of the beauties of wild birds, and they are always covered in huge numbers of parasites.<sup>[87]</sup>

Beginning around the dawn of the 20th century, there were a few attempts to create more naturalistic enclosures for zoo animals. The Tierpark Hamburg-Stellingen of Germany, founded by Carl Hagenbeck and opened in 1907, jumpstarted the modern trend of zoos without cages and visible barriers. Its landscape of synthetic rocks and landscaped meadows was radical in a time when most zoo animals could expect to live and die in bare, cramped cages of metal and concrete (left).<sup>[88]</sup> In strictly aesthetic terms, the Tierpark was a marked improvement over earlier zoos; but for many of its animals, the apparent freedom of movement was illusory. The vultures in the Tierpark were uncaged, and to the casual onlooker it appeared that they could just fly away. But their legs were bound to the false rocks upon which they perched by meter-long chains;<sup>[89]</sup> aside from the abundance of sunshine and

fresh air that these vultures enjoyed, their condition was no better than that of their caged brethren. Johann Jakob von Tschudi encountered similar conditions during his travels in Peru in the 1840s. At a Peruvian market, he found merchants who routinely sold live Andean Condors, trapped in the wild; “A very fine one may be purchased for a dollar and a half,” he wrote. One merchant secured eight of his Condors in a yard “in a very singular manner”:

A long narrow strap of leather was passed through the nostrils of the bird and firmly knotted at one end, whilst the other end was fastened to a wooden or iron peg fixed in the ground. By this means the motion of the bird was not impeded: it could walk within the range of a tolerably wide circle; but on attempting to fly it fell to the ground head foremost.

This merchant assured Tschudi “that, by way of experiment, he had given a condor, in the course of one day, eighteen pounds [8.2 kg] of meat (consisting of the entrails of oxen); that the bird devoured the whole, and ate his allowance on the following day with as good an appetite as usual.”<sup>[90]</sup>

Some thought that the best solution for keeping vultures and other soaring birds content and healthy would be to render them unable to fly by some means, and house them outdoors and untethered, in a fenced enclosure open to the sky. There are a number of proven techniques for keeping the birds grounded; currently, the most commonly used is that mentioned in Chapter 9: cutting off some or all but one of the primary feathers on each wing. Other techniques for grounding the birds, like mutilating one wing to make the bird inherently unstable in the air or amputating both wings at the wrist joint, are irreversible, require invasive surgery, and are generally disliked by zoo

personnel as well as the viewing public, if they get wind of them. These techniques are also verboten for vultures that may be returned to the wild or used in free-flight demonstrations for the public, both of which are increasing concerns for zoos.

Still, to this day, the majority of vultures in captivity are kept in fully enclosed spaces, euphemistically dubbed *flight cages*. That term is something of a misnomer, since restrictions of space and the lack of steady air currents ensure that large birds inside even the biggest cages can spend no more than a few moments of each day in flight; besides, the very largest flight cages are usually (and rightly) used to house birds with more active flapping flight than that of the vultures. Whatever types of enclosure they're housed in, vultures aren't particularly picky when it comes to living quarters. Some of the tropical species, such as the King Vulture and Pondicherry Vulture, are very sensitive to cold and vulnerable to frostbite, and must be kept in heated areas if the outdoor temperatures drop much below 65° F (18° C);<sup>[91]</sup> and Lammergeiers appear to be rather more content in captivity if they're given the opportunity to anoint themselves with reddish or yellowish dust, as they would in the wild.<sup>[92]</sup> Aside from such stipulations, captive vultures require only food, water, company, places to perch, and room to stretch their wings and strut around a bit. While the psychological effects of the vultures' captive lives have yet to be seriously explored, their proven ability to thrive in captivity, and to successfully return to the wild after years in confinement if they re-learn the ability to soar, suggests that the physical effects of spending virtually their entire lives grounded usually aren't crippling to them.

However, there is another avenue in which the presentation of vultures in captivity can and has done serious harm to the birds: The one-way street of human perceptions. Although I and many others disagree with the commonly expressed view that a grounded vulture viewed at close range is “ugly,” there's no denying that a vulture, any vulture, offers the greatest aesthetic satisfaction when it is flying – and that captive vultures are seldom seen in flight. Regardless of the effects upon the birds, to humans the difference between a flying vulture and a perched vulture, particularly a vulture perched behind bars, is an important one. All of the most positive interpretations of vultures described in this book were based on vultures that were seen in the wild and able to fly at will, and many of the most negative were and are based upon vultures that were grounded for one reason or another. What warped views might come of seeing vultures *only* on the ground, at close range; or, to put it another way, do humans see flying vultures in a dramatically different light than grounded vultures?

The answers to that question, though necessarily subjective, are illuminating. In 1878, Crown Prince Rudolf undertook a hunting expedition along the Danube River in Central Europe. As he was trekking in the mountains along that river, he “suddenly caught sight of a huge black bird of prey flying majestically over one of the heights.” Rudolf noticed that “it was too large for an eagle, and its flight was also strange to me,” when one of his companions told him what it was: a Monk Vulture. Before this hunting expedition, Rudolf had seen Monk Vultures in captivity, but never in the wild. Wrote the Prince,

its gigantic pinions, with their primaries standing apart like the fingers of an outstretched hand, its cuneate tail, its long neck doubled back among the feathers of its neck-ruffle, and way in which it sailed through the blue ether, without the slightest visible movement of its wings, made this heavy bird, which seems so disgusting near at hand, look splendid in the distance.<sup>[93]</sup> [Translated by C. G. Danford]

He later added that “the bird is so extremely imposing in its flight that in comparison with it the great Sea and “Stein” [Golden] Eagles suffer, if one may so say, just as much as the Buzzard and Kite do when compared with them.”<sup>[94]</sup> That statement, which would've been considered borderline heretical

by many Europeans, was echoed by one British visitor to California who saw that state's native Condors in flight. He wrote in Richard Lydekker's *New Natural History* that the California Condor's soaring was

graceful beyond comparison, as it sails majestically overhead in gradually contracting or expanding circles, now gently falling with the wind, and again rising easily against it, without a perceptible motion of its pinions. While on the wing, it looks more that the peer of any of our birds, the golden eagle not excepted.<sup>[95]</sup>

A particularly insightful comment on the difference between grounded and flying vultures was offered by Willoughby Verner, who wrote in *My Life Among the Wild Birds in Spain* that the Griffons of that country

are without question, when on the wing, among the most magnificent of birds. To watch them circling thousands of feet overhead on the look-out for food or sailing past one of the grand cliffs whither they resort to nest in big colonies is a never-failing joy. During the many years I have spent among wild birds I have from time to time induced friends to accompany me to some of the nesting-stations of these birds and have as often witnessed the surprise and delight they have betrayed on first seeing the Vultures on the wing in these localities. On such occasions one is far removed from the spot where the birds have found their last unsavoury meal, and one only thinks of them and sees them as splendid birds with vast expanse of wing endowed with most marvelous powers of flight.<sup>[96]</sup>

The literature that modern Americans have compiled about Turkey Vultures is particularly instructive in the understanding the differences of perception between flying and grounded vultures. When perched or walking about on the ground, the birds are reviled for their appearance and eating habits; but when they're flying, observers exhaust their flowery language in trying to outdo each other with poetic descriptions of the Vulture's mastery of the air. The ornithologist Alexander Wetmore summed up this attitude well enough: "On the wing their graceful evolutions, performed with a minimum of obvious effort, constantly please the eye, but birds at rest, in hunched position with featherless heads protruding, are completely without esthetic attraction."<sup>[97]</sup> Writing in *The Birds of Minnesota*, Thomas Roberts remarked that when groups of Turkey Vultures had perched for the night, "it is then difficult to reconcile these ungainly, ill-shapen creatures with the majestic, graceful birds in the air a few hours previously."<sup>[98]</sup> Difficult though it was for Roberts, it must be noted that there is no chance whatsoever of anyone making any such reconciliation with captive vultures.

It thus comes as no surprise that many observers of captive vultures have expressed a deep sadness at seeing the birds in their constrained circumstances. The aviation pioneer Louis-Pierre Mouillard wrote that for the large birds of prey, "there must be freedom; otherwise, we have only eagles motionless as millstones, or ill-smelling vultures worrying themselves to death, their heads smothered between their shoulders; two aspects which have nothing in common with that of these kings of the air proudly traversing the immensity of the skies."<sup>[99]</sup> In his semi-autobiographical novel *How It All Began*, the Russian writer Nikolai Bukharin brought his protagonist and author stand-in Kolya to a zoo, where

he went to visit the birds of prey, the largest and mightiest of the birds. There was a cage with vultures, kings of vast icy spaces, carrion eaters with naked necks—huge birds that drop down for their meal from immeasurable heights. There they sat, with heads lowered gloomily, downcast, with their wings drooping and eyes grown dull, and from their once mighty wings, torn and tattered feathers dropped to the floor. Lifting their tails, they scolded one another. The American condor, like a beggar, propped himself against the wall, looking all twisted and dull.<sup>[100]</sup> [Translated by George Shriver]



Some would say that these observers were anthropomorphizing the birds' circumstances, projecting their melancholia and their desires for freedom onto vultures that could not and did not harbor any such feelings. There probably is an element of truth in this; but I think that all can agree that both vultures and humans would be happier if the birds at least had the *opportunity* to soar into the sky. Both of the currently popular methods of keeping vultures in captivity - enclosing them in flight cages and grounding them in open enclosures - deny them this opportunity. One possibility for giving captive vultures and other soaring birds more opportunities for flight would be to house them in a structure that incorporated a vertical wind tunnel (akin to those used in indoor skydiving facilities), or some other mechanism that could generate strong, steady air currents, in which the air would be kept moving with enough force to allow the birds at least a semblance of soaring. A soaring cage for vultures would be very expensive to construct and operate, perhaps prohibitively so; but for birds and onlookers alike, it might be worth the cost.

Zoos fortunate enough to be located near usable habitats for wild vultures have a much simpler and less costly alternative: they can allow the birds to roam at will, but coax them within viewing range of their visitors simply by feeding them regularly. This expedient has been most famously adopted by Salzburger Tiergarten Hellbrunn, a small zoo located in Austria, which along with its surroundings is home to the northernmost population of Eurasian Griffons in Europe. This boreal Griffon colony comprises about 16 birds, including four breeding pairs, which nest on a mountain 3 miles (4.8 km) from the zoo. The Griffons come and go as they please, but they're fed on a regular schedule in front of the zoo, and have become accustomed to the presence of humans - even raucous zoo visitors - in the process.<sup>[101]</sup> A similar situation prevails at the Zoo de Doué, located in the Loire Valley in central France. Visitors to this zoo can expect to see 12 to 15 free-flying Eurasian Griffons, which have been attracted to the zoo over a period of years by regular feedings.<sup>[102]</sup> Such arrangements are winning for all concerned: The zoos gain popular and enduring attractions that require little cost or upkeep beyond the food set out for the vultures, the zoos' visitors are able to see vultures at their best (that is, flying freely) *and* at close range, the vultures get a steady and dependable supply of food; and, by being viewed at their best, they just might help to change opinions of their kind for the better. One can hope that this sort of setup represents the wave of the future; it certainly demonstrates the increasing convergence of conservation strategies for wild and captive animals, as both of these zoos have essentially set themselves up as vulture restaurants.

Such a strategy isn't suitable for all zoos, for many zoos aren't located within the wild ranges of the world's vultures; and even among those that are, many would be unable to safely attract the birds for one reason or another. But the sheer numbers of wild vultures that have found their way to zoos *without* any intention on the zoos' part to attract them - sometimes even despite efforts by the zoos to get rid of them - gives good cause for optimism in this endeavor. Zoos always include open spaces and a surplus of food - both of that intended for the captive animals and that fed to the human visitors - which seems to be all that's necessary for the smaller and more tolerant vultures to set up shop. More than 80 years ago, Robert Murphy visited the zoo in Lima, Peru, and noted that "the most conspicuous of the wild birds are the black vultures or *gallinazos*, which at all hours wheel in a definite circle of the sky above the park, and which descend every morning to gobble up the offal in a slaughter-pen where the food of the flesh-eating mammals and birds is prepared."<sup>[103]</sup> Other Latin American Black Vultures have carried this proud tradition to the present day, none more than the large resident population which formed at the São Paulo Parque Zoológico in Brazil. No doubt comprised of Vultures that were already seasoned veterans of the vast city's garbage dumps, these particular birds

have become problematic to the zoo, as their predacious habits mean that they aren't always content just to eat leftovers of the captives' meals; sometimes they try to eat the captives, too.<sup>[104]</sup> Some of the bolder Old World vultures have also seized this particular feeding opportunity, especially in India, where at the beginning of the 20th century the birds could be seen joining legions of Black Kites in the search for scraps at zoological parks.<sup>[105]</sup> It's also reported from Africa that some very brave White-backed Vultures will invade the enclosures of captive Lions in order to steal portions of the big cats' meals,<sup>[106]</sup> which must be a rather unwelcome reminder of the irritations of life out on the savanna for the Lions.

On the whole, vultures seem well suited for zoo life, and for captivity in general. David Houston wrote that in captivity, the birds display

a relatively inactive behaviour pattern. Provided they are fed regularly, vultures will spend most of the day resting. Vultures show none of the nervous hyperactive behaviour patterns of some other raptor species in captivity that make them so difficult to establish and breed in aviaries.<sup>[107]</sup>

Compared to more typical birds of prey in captivity, vultures have the advantage that most of them are social to some extent, and will readily socialize with their fellow captives (rather than attempt to kill them, as other raptors often do), or even with humans if other birds aren't available. As scavengers, vultures are also preadapted for zoo diets. Few modern zoos will allow their captive predators to kill anything larger than small rodents; as a result, predators kept in zoos for extended lengths of time can be expected to have severely atrophied killing skills. Although they don't have to search long and hard for it, break into large carcasses to reach it, or compete with other scavengers to claim it, at good zoos captive vultures are usually fed much the same carrion that they would eat in the wild.

It's still a mistake to talk of captive vultures as though they are all alike. Some vultures adjust to the easy but boring and confined captive life almost immediately; but some, especially wild-caught adults, do not. Even among closely related species, such as the two condors, there are gross differences in temperament. California Condors have a reputation for docility (which is just as well, considering their recent circumstances), but Andean Condors have been described as "savage and pugnacious"<sup>[108]</sup> and "vicious when nesting, more so with each passing year."<sup>[109]</sup> In an article detailing the behavior of this species in captivity, Janet Bailey and Niels Bolwig noted that although Andean Condors were mostly peaceable towards their keepers, the male of the pair would occasionally exhibit aggression, during which the Condor ruffled his feathers, "walked swiftly toward the opponent with long, deliberate strides, beak pointing straight ahead, and wings slightly raised. At close range, he lowered his shoulders and suddenly uncoiled his long neck, lashing forward with great force while trying to bite and tear the target of aggression." Rarely, this aggression would escalate into an outright physical assault, which consisted of

jumping the person in a manner reminding one of a rooster fight. The wings were then slammed against the person while he struck out with open beak and both feet. . . . It was necessary for the keeper under attack to throw up his arms to shield his face. Such attacks occurred only in the middle of the breeding season and when the keeper approached the nesting site.<sup>[110]</sup>

The biggest of all vultures shares this trait of sexually induced aggression with the smallest, the Palmnut Vultures. Already accorded much respect by their keepers due to their massively powerful grips, these birds have been reported to become "very hostile" during their courtship period,

threatening their attendants, swooping at and clawing anyone who entered their enclosure, biting peoples' legs, and generally making it clear that humans were unwelcome.<sup>[111]</sup>

As with other animals popularly deemed "fierce," captive vultures have sometimes been used in staged battles with other animals. Vultures kept as pets have often tangled with other animals, by design or accident, and by all accounts have acquitted themselves well – particularly against Dogs, whose feral relatives are frequent competitors of vultures in the wild. There are persistent rumors that in the 19th century, Mexican *vaqueros* would capture California Condors (by lassoing them while they were grounded) and pit them against eagles or roosters in cockfighting rings.<sup>[112]</sup> If such fights actually took place, and there seems to be no hard evidence that they did, their outcomes are unknown. More recently, in North Korea's capital of Pyongyang, the Korea Central Zoo has staged and filmed fights between some of its captive animals, which were then packaged as video "documentaries" and cheaply sold in South Korea. I haven't seen these videos personally, but James Card viewed and reported on one of them for the *Asia Times* newspaper in 2006. Card wrote that among the video's many brutal and improbable battles was a confrontation between a Red Fox and a Monk Vulture, which ended with the "vulture's talon slashing through the eye" of the Fox, presumably with fatal results for the mammal. Judging from the narration that accompanied parts of the video, the zoo's motivation for torturing and killing its animals in this manner was to celebrate the "superiority" of native Korean animals over non-natives.<sup>[113]</sup> Whether this was the case for the Vulture-Fox fight is difficult to say, as Red Foxes are native to the Korean peninsula and Monk Vultures are seasonal migrants.

The overall influence of captive vultures upon human opinions of their kind has always been mixed. It seems that people who view vultures in captivity tend to have their preconceptions and stereotypes about the birds reinforced, even as they (sometimes) learn unexpected things about the birds, and perhaps come to better understand their value to the world. This author harbors no doubt that the historical antipathy towards the birds in Europe and North America has been due in large part to the fact that most people are familiar with live vultures only as hunched-up figures in zoo cages. On the other hand, captive vultures in good care are offered the chance to exhibit their native sociality and intelligence, and to dispose of many of the common myths about their kind; at the very least, captive birds have disproved once and for all the notion that vultures prefer rotting meat to fresh meat. Not to mention the notion that all vultures smell terrible. As Willoughby Verner recalled, a young vulture "taken from the nest and brought up on fresh food is as little objectionable as is any other bird kept in captivity." Putting this to a practical test, he kept a young Eurasian Griffon as a pet for more than two and a half years, and

during that time it not only was never in the least offensive but kept its plumage in the finest condition imaginable. A great bather, its chief delight was to be played upon with a garden hose, when it would expand its wings and gyrate slowly so as to let the water strike every part of its body. A favourite position was to throw itself on one side and expand the disengaged wing so that the water could strike its axillaries with force; after some minutes of this treatment it would turn round and similarly expand the other wing for a like course of spraying.<sup>[114]</sup>

More than a few other professional outdoorsmen - hunters, safari guides, explorers, and the like - have acquired pet vultures in their travels, although not all of them were happy with the results. In December of 1833, J. Hutton, a lieutenant in the British Army, discovered four White-rumped Vulture nests in a tree near the town of Neemuch in central India. This was no wondrous discovery, as the White-rumped was then the most common large bird in India; however, one of these nests contained



not an egg, but a just-hatched chick. After leaving the chick to the care of its parents for a few more days, Hutton and his servants then bore it off as a prize. Hutton uncharitably mentioned that when the chick was captured, "The old vultures offered not the slightest resistance, but sat stupidly watching the robbery we were committing." He initially thought that rearing the bird would be easy, as it "fed greedily" on the raw meat that he offered to it. But he was astonished at the very slow development of the young Vulture; two weeks after he had first seen it, "my gluttonous friend had not even the smallest symptom of a feather." Instead, the chick's entire body was covered in gray down, except for bare patches on its neck. Its muscular development was no more impressive, as, "It had no power to stand on its legs, owing to the great weight of the body." Even at 40 days of age, the young Vulture was unable to stand, "for, although his strength had increased, the weight and increase of bulk of the body still rendered his legs of no use." Hutton found the bird's appetite was "now no easy matter to satisfy, a pound of flesh at a meal being thought nothing of" - further, "After feeding, or when hungry, it emitted a fractious peevish cry, like a sleepy child."

By two months of age, the Vulture was able to stand upright and walk, and it made energetic use of this new ability:

It was now so tame, as to become a perfect nuisance; for no sooner did it see any person, than it ran towards them screaming and flapping its long wings, with the head bent low, and neck drawn in towards the body, often pecking at the feet of the person thus intercepted. Many were the thumps and kicks the luckless bird received from the servants, who most cordially detested him, as their bare feet were often assailed and cut with the sharp blows of his curved beak.

At night, the young Vulture took to roosting on top of Hutton's bungalow, or sometimes on the houses of the neighbors, whose feelings about this arrangement can only be imagined. Hutton had clearly begun to tire of his pugnacious pet at this point; "Often did I wish that he would take unto himself the wings of the morn and flee away; for he never entered the house without making it so offensive as to be scarcely bearable." The Vulture acceded to this wish and flew away for good at the age of five months, to the joy of Hutton - and to that of his barefooted servants, no doubt. <sup>[115]</sup>

More competent and patient persons who kept captive vultures had more positive views of the birds. One of them, the paleontologist Roy Chapman Andrews (who later became one of the inspirations for the character of Indiana Jones) recalled that a member of his 1925 expedition into Central Asia took a Monk Vulture chick from a nest in Mongolia and brought it to the camp, where it "became as tame as a chicken." It refused to eat any but the freshest meat, and proved to be very fastidious about which parts of a carcass were choicest; Chapman's team only managed to persuade it to eat a piece of antelope liver after it had fasted for 36 straight hours. When the expedition was camped near a lake, the Vulture would bathe two or three times a day, then doze in the sun with its massive wings stretched out to dry. Although the Vulture was allowed to roam at will around the camp, Andrews said that it never attempted to escape:

In fact, it got distinctly lonely if most of the men were gone and always preferred to be near someone. Its favorite sleeping-place was in the rear of my tent; my police dog also liked to sleep there and the contests for supremacy were most amusing. The dog was usually worsted in these encounters, for he evidently considered it beneath his dignity to fight with a bird.

If the camp was pitched near any cliffs, the Vulture would fly up to the crags and "spend hours sitting on a projecting pinnacle gazing over the country below." Otherwise, it seldom left, apparently

preferring the company of the rag-tag paleontologists to whatever attractions it might find in its native habitat. Despite its disinterest in escaping, Andrews harbored no doubt that the Vulture

had considerable intelligence. One day I was sitting in my tent writing. A gasoline tin of drinking water was near the door. The vulture came up to the tin and rapped upon it with its beak, significantly. I paid no attention and after three or four raps the bird entered the tent, jerked my coat and returned to the tin. Of course I gave it water. I could hardly credit the performance but there was no mistake; the vulture knew there was water in the tin and that it could not be had without human assistance. As a matter of fact, it had been given water very often from the tin, which was usually kept at the tent door.

Andrews added that when the expedition returned to New York with its odd mascot in tow, "the bird became very much attached to me and would recognize me instantly even when there were other men about. It was extraordinarily curious and when the men were packing fossils it insisted upon examining every box."<sup>[116]</sup> This Vulture later ended up in the Bronx Zoo, where it died in April 1944.<sup>[117]</sup>

That zoo's Curator of Birds at the time, Lee S. Crandall, was so moved by the plight of his vulturine charges that he lamented the "pathetic condition of life" that was the lot of all vultures, as in his opinion a vulture was "a poor creature, a carrion bird whose habits place him outside the pale of decent society and so repulsive in appearance that human beings turn from him with a shudder." And yet, wrote Crandall, the vulture was "a public benefactor, working constantly and efficiently in the service of General Hygiene. And the most touching thing about it is that this ugly bird, detested by all, is often of an affectionate disposition and would like to be a 'friend of man.'" He felt that vultures,

when considered as individuals, often are not only interesting but agreeable. A fine old eared [Lappet-faced] vulture of my acquaintance is an excellent example. To his friends, who know him as "Funny," he exhibits a strong and pleasant personality. While his quarters are receiving their daily attentions he follows his keeper about, progressing with his peculiar vulture hop, striking playfully at the rake with his clumsy feet or tugging at the hose with his great beak. At frequent intervals he insists that his wrinkled pate be lightly scratched - and, at times, he brings a stick in his beak and invites a friend to play with him. He has his like and dislikes - just like humans. In the early days of our acquaintance, before I had been admitted to the inner circle, he once slyly applied his beak to my instep with a shock that I felt for days. But that was years ago and "Funny" now figures as one of the most companionable bird characters I have ever known.<sup>[118]</sup>

Many other people have commented on the unexpected charm exhibited by captive vultures when the birds were patiently observed or interacted with, rather than merely glanced at for a few disdainful moments and then passed by in favor of more superficially attractive creatures. The zoologist William Beebe went so far as to claim that vultures made wonderful pets, "being surpassed in cleanliness, affectionateness and tameness only by baby bears, sloths and certain monkeys";<sup>[119]</sup> further, he felt that, "Psychologically speaking, there is a very distinct line between the vultures and hawks. The latter are visually stolid and severe in their demeanour, while vultures are endowed with a spirit of rollicking fun and humour which is remarkable."<sup>[120]</sup> Canon H. B. Tristram would have agreed, especially regarding the Eurasian Griffon, which he noted was "easily tamed" and which he thought of as "cleanly in his habits, docile, and of remarkable intelligence."<sup>[121]</sup> Writing in the *National Geographic*, Jane Goodall commented that although vultures were "commonly regarded with disgust and loathing, [they] in fact are intelligent birds, and those I have known in captivity have been full of charm and character."<sup>[122]</sup>

The person of the highest political rank who kept vultures as pets was probably Crown Prince Rudolf, heir to the throne of the Austro-Hungarian Empire in the late 19<sup>th</sup> century, who had two

Lammergeiers: a young bird taken from its nest and reared after one of the Prince's hunting parties had killed both its parents, and an adult purchased in Spain "that had already been long in confinement, and was so tame that it quietly allowed itself to be touched." Both birds survived the sea and land voyage back to Austria, although they refused to eat when the weather turned rough. When their appetites returned, wrote Rudolf, "The diet that suited them best was creatures of all sort, with the skin, hair, or feathers left on, which go to form their castings. Bones, however, are their favourite delicacy, and my old bird crushed the strongest beef-bones with incredible strength."

One day Rudolf, who was probably curious about the Lammergeier's supposed predatory proclivities, placed a live Rabbit in the cage of his older Lammergeier. The bird's reaction, though perhaps emotionally scarring for the Rabbit, was quite surprising:

Like lightning he seized the poor beast with one foot, but did not squeeze it in the least, for he was quite sated, and only wanted to play with it. The game, however, turned out a somewhat grim one: for with his sharp beak he worked up and down the unlucky rabbit, and literally shore the whole fur from his body right up to the forehead. This he swallowed, and then let the animal slip out between the bars of the cage, clean-shaved, but otherwise uninjured.

Rudolf was much impressed with the old Lammergeier's demeanor, as it

was perfectly tame and quite composed under all circumstances. I never saw him either excited or frightened. He did not pay the slightest attention to dogs, even when they came close up to him, nor was he alarmed at the bustle on deck, and when anybody approached him he seemed particularly pleased and at once stretched out his head. In the repose and deliberation of his movements he struck me as differing greatly from the many eagles which I have either kept myself or seen in confinement; for he had none of the vivacity or irritability which is daily exhibited even by quite tame young eagles, and appeared to look with disdain on all that went on around him.<sup>[123]</sup> [Translated by C. G. Danford]

No doubt these experiences influenced Rudolf to dub the Lammergeier the "noblest bird of prey" and "the king of the bird-world." If only more 19th-century European nobles had kept pet Lammergeiers, the species might have been better off, in reputation if not in numbers.

Although many thousands of individual vultures have been held in captivity and publicly exhibited during the past couple of centuries, none of them really attained superstar status; there never was any vulturine equivalent to Jumbo the African Elephant, Keiko the Orca, or Old Abe the Bald Eagle. The one vulture that came closest to such heights of fame was probably General, the California Condor. General would have remained one of the countless Condors who lived in free anonymity (and, considering the era in which he lived, likely would have died under gunfire), had it not been for his relationship with William L. Finley, a naturalist and photographer who spent his life in the far American West. The saga of Finley's bird was reported in a series of articles and photographs published in - what else? - *The Condor*, beginning in 1906. Since 1895, Finley wrote in the first of his "Life History of the California Condor" articles, a pair of California Condors had been seen "about one of the canyons of a certain range of mountains," well outside of the usual range of the species. Many attempts had been made to find the nest of this pioneering pair, but all of them failed. In March 1906, Finley and two companions renewed the search, trekking into "the roughest, wildest place without an indication of human habitation," which surely was the "natural haunt of the California condor."





After sighting the Condors and a fair amount of searching they found the location of the nest, but the weather then turned torrential and the quest had to be abandoned for over a week. Upon returning, they found that one of the adult condors was sitting in the nest cave. Finley managed to climb up to the cave, to "within four feet of her and whistled and yelled till she rose on her feet." The Condor looked so huge and formidable that Finley shrank away, thinking that she might aggressively defend the tiny chick that had been revealed as she stood. Finley eloquently described this tiny creature:

His head was bald like his mother's, but baldness did not signify age in this case, altho his head was fleshy-pink in color. He was weak for he could hardly kick, and he seemed to raise his head with difficulty as he cried out in a wheezing, hissing note. Beside him lay the end of the egg from which he had emerged not many hours before. He was not yet dry. He was not even well clothed, for behind his little wings, the flesh was bare and his belly was bare, while the rest of his coat was down of pure white.

As Finley marveled at the little Condor, its mother stood with "her neck feathers ruffled up in anger. Then as her baby began to squirm, she put her head down and covered him partly with her bare neck. Then it was evident we could not scare her from her den."

Finley managed to roll the chick from the cave without its mother attacking him, and took several photos of it. But it was still raining, and the chick was becoming chilled, so Finley placed it back in the nest. Its mother at first ignored it, as it was so weak by this point that it couldn't even squirm. Hoping to coax her into recognizing it, Finley warmed it against his body and again placed it in the cave. This was a moment of great anxiety, for

if she did not take the chick to her, it meant his death as well as an end to all our dreams of getting a life series of pictures of this rare bird. For an instant she paid no attention to him, but just then he began to stir and wriggle. Her eyes changed from their vacant stare: she suddenly seemed to recognize her nestling, and putting her bill down she drew him gently near, crouching down at the same time and finally drawing him under her breast.



Satisfied that the chick would survive after all, Finley and his companions left with five photographic plates ("any one of which, if it was good, would pay for a thirty-five mile trip into the mountains"), and the prospect of getting more unique photos of the young Condor.<sup>[124]</sup>

Finley made the trip into the mountains again in April. This time both of the adult Condors were present, and neither of them "seemed the least anxious as to our presence." Finley "began to enjoy the sensation of getting so close to these big birds in their wild mountain haunt." Upon climbing to the nest, he found that "the condor nestling had grown from the size of the egg, or from about a double handful, till he filled my hat." It had also changed color, the down covering its body turning to a light gray, and the bare flesh of its head and neck now looking more yellow. When Finley approached the chick:

He sat with his shoulders humped and his head hung as if in the last stage of dejection. The minute he saw me, he began crying in a note most peculiar for a bird, for it sounded exactly like the hoarse tooting of a small tin horn. However, he only used this not a few times, then he began hissing. He showed his resentment by drawing in his breath and letting it escape as if thru his nose.

The chick had become a little more vigorous since the first visit; when Finley again took it from the nest, it attempted to bite him. The adult Condors, on the other hand, had left the nest cave on some mysterious business, and Finley set the chick down at the cave entrance to take some pictures. One of its parents was soaring high overhead, and "he seemed to see his chick, for he began to descend rapidly. . . . He swept in near us and lit on the old dead pine and was soon followed by his mate." Wrote Finley, "The old birds looked so serious as they sat there staring at us and their young, that we hesitated, for we were not in a position for trouble there on the steep side of the mountain." Yet neither Condor made any move to interfere with their human visitors, much less attack them; Finley thought that "they seemed to take the whole enterprise from the point of view of curiosity."

Two weeks later in April, Finley found the nestling "in a savage mood" and "developing good fighting qualities." Now five weeks old, the Condor chick was "as large as a good-sized chicken", and sported a spirit that would do credit to a prizefighting cock. When Finley momentarily placed his elbow near the chick, "he lunged forward and struck it such a hard blow with his bill that it would have drawn blood had he hit my bare hand." When the chick first saw him,

his neck puffed out with wind and his whole crop filled till it felt just like a rubber ball. He seemed to use his crop as a supply tank for air, which he blew out slowly through his nose to express his anger. . . . Such a breath as that youngster had! I could not describe it, and I tried to forget it as soon as possible.

Nevertheless, Finley found that each visit to the nest placed the humans "on more intimate terms" with the adult Condors. He wrote, "The minute we lifted the young condor from behind the rocks, the old birds were very much interested. They both came over to a nearer perch where they could see, and they twisted their necks to watch every move we made."

As it grew, Finley saw "that the parents were becoming more and more attached to the nestling, and they were becoming tamer and tamer while we were about." But the nestling itself only grew "wilder and more ferocious." When approached within the nest cave, he fought the human interlopers with all the strength he could muster; but when removed from the cave for photography, "he seemed to change tactics and to become quite meek." While their chick was being recorded for posterity, his parents perched close by. Finley noted that the adult birds "were almost devoid of fear, for several times they stood within five or six feet of us in perfect unconcern" as long the photographers were careful not to make any sudden movements. "In all our study of the home life of these birds," Finley

wrote, "there was never the slightest indication of ferocity on the part of the parents. Their attitude was one of anxiety and solicitation."

As the young Condor defended himself so tenaciously, he could only be handled by wearing heavy gloves, or by fitting him with a blindfold. The very last afternoon that he was photographed in his wild haunts, Finley and his comrades took him out of the cave with the blindfold around his head. His nearby mother "jumped back as if scared, for she could hardly recognize him without a head." Seeing the problem, Finley placed the chick on a ledge of rock, then removed the blindfold. Immediately, "the mother edged down to her young. Then she began caressing him, pushing her head under his wing and biting him gently on the leg." Finley reminisced that, "I never saw a greater show of affection in any bird than the two condors seemed to have for each other and for their young. The longer we studied and the more we watched this family, the stronger our own attachment became for the birds."<sup>[125]</sup>

Finally, with the series of photos of the young Condor completed, Finley elected to take the chick home with him. Christening it with the name of "General," he removed it from the nest and it arrived at his home in Portland, Oregon in July 1906. At the time, the Condor was about two-thirds grown, weighed fifteen pounds (6.8 kg), although it still wasn't fully feathered, and "was fed twice a day with about a pound of raw meat." Though held in a cage most of the time, he was set loose in the back yard once a day, where he would exercise his wings and bound across the grass. Finley noted that though General was "very savage" in his nest, after he was taken "his ferocity gave way to fear and then to gentleness." This didn't stop him from harassing the other household animals, as "he would pounce upon the dog with a flap of his wings" at every opportunity (an action that always ended in the hasty retreat of the Dog), and once grabbed the hapless canine by the ear while it was asleep in the yard. Finley's Cat nearly suffered a similar attack, when "the bird climbed the back steps where the cat was sitting. Pussy didn't see the condor until he reached the top step and was about to take a bite, when she suddenly awoke with a fit and jumped backward into space."

General was later taken to a summer camp near the Willamette River, where he was housed in a 12-by-15 foot (3.7 x 4.6 m) enclosure and again let out every day in order to exercise and bathe. He seemed to be content enough with this arrangement; but, wrote Finley:

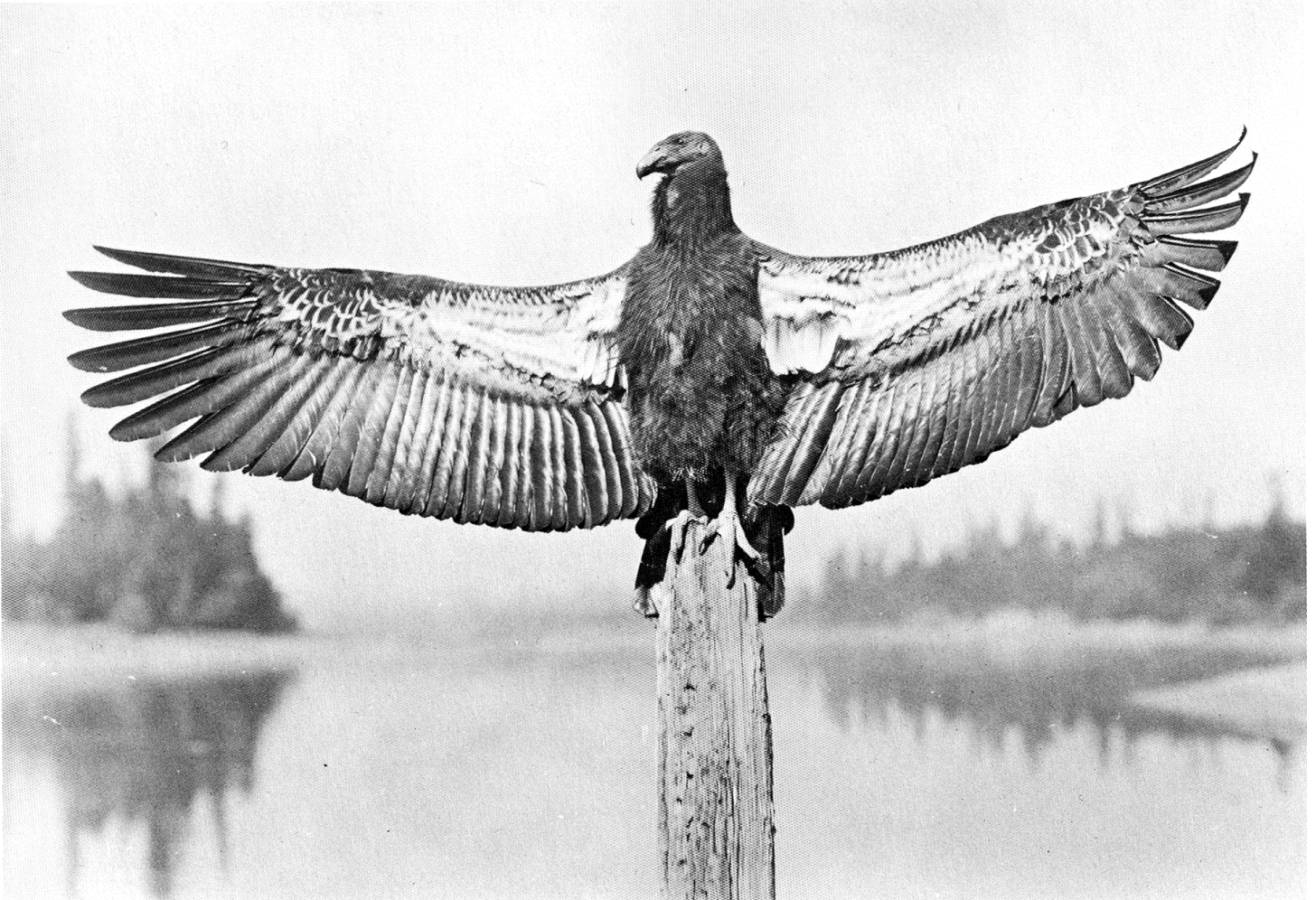
If he were not released at the usual time, he became restless and soon attracted our attention by climbing up and poking his nose thru at the gate. The minute I opened it he stalked out, but always stopped cautiously a moment or two outside the gate to look about. He did nothing without deliberation. With several hops he went half way across the yard, flapping his big wings. Then he went thru a regular dance, as if celebrating his freedom. He stretched his wings and jumped straight up in the air several times in succession, like an Indian on the war path; but he never said a word.

Contrary to Finley's (and everyone else's) expectations, General was a finicky eater, refusing anything but clean, fresh meat and preferring beef to everything else. Finley once fed him nothing but wild game for two days, and, "The instant I went near with the beef, he smelled it and began reaching for my hand. He gulped down two or three pieces and then I slipped in a bite of squirrel, but he threw it out." General also enjoyed gnawing bones, and Finley often left one nailed to his perch, just as a parrot owner might provide her pet with a cuttlebone.



The young Condor was very playful; Finley said that, "He became hilarious the minute he got out of the enclosure . . . he could hardly control himself." If no playmates were present, he would play with sticks or leaves, picking them up, shaking and tossing them, jumping on them, and then tossing them up into the air again. One of General's favorite games was tug-of-war, during which he "snatched the rope in his bill and sat back on his haunches with a jerk that almost sent one sprawling; then, finding that he was making no headway, he jumped up and down, flapping with considerable strength." He would also follow a rope pulled along the ground, much as a kitten follows a string, and the camp personnel learned to be wary when he was first released every day, as "he generally made straight for one of the tents to grasp a rope and pull back till he threatened to demolish the whole thing."

General proved to be an object of curiosity not just for humans, but for the Crows and Turkey Vultures that were often seen around the camp; in Finley's words, "The buzzards sailed around and around, turning their heads to watch, but never seemed to understand why he stayed there." The Crows seemed to be "greatly alarmed" by the hulking Condor, and often perched in trees nearby and



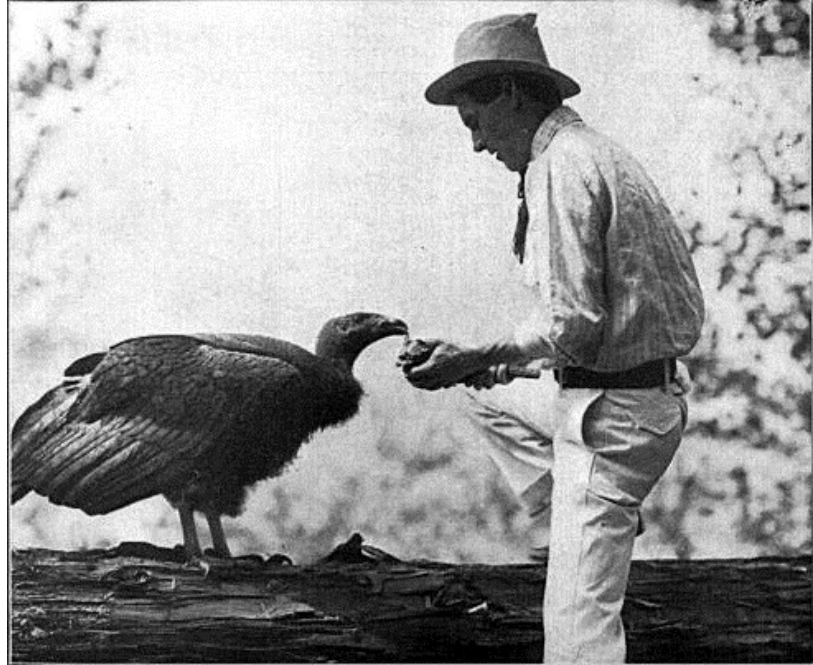
cawed loudly, while General merely "sat as if in revery, watching every move they made."

Though his affection for his unique pet was unconditional, Finley was well aware that few people would understand his feelings. While admitting that a "young condor is the incarnation of ugliness to most people" and that it was "known only as a degenerate and a carrion-eater," Finley insisted "there is more than this in the condor nature. He readily adapts himself to better conditions and rises above the position that nature has forced him to occupy." He wrote, "One might think a person could have little attachment for a vulture. There is nothing treacherous or savage in the condor nature. General undoubtedly felt a strong love for society. He liked to be petted and amused.

He preferred to be near me rather than alone. . . . and he was now gentle and fond of those who cared for him.”

On top of all this, the young Condor

showed an intelligence that was as marked as in any pet we have ever had. He loved to be petted and fondled. He liked to nibble at my hand, run his nose up my sleeve, and bite the buttons on my coat, and he was gentler than any pet cat or dog. Every move he made was with care as if afraid of being too rough. Of course, if he were scared or struck at, he would strike back. But there was never the least indication of savageness when he was well treated. If I held meat in my hand, he nibbled to get it, but never once did he bite.

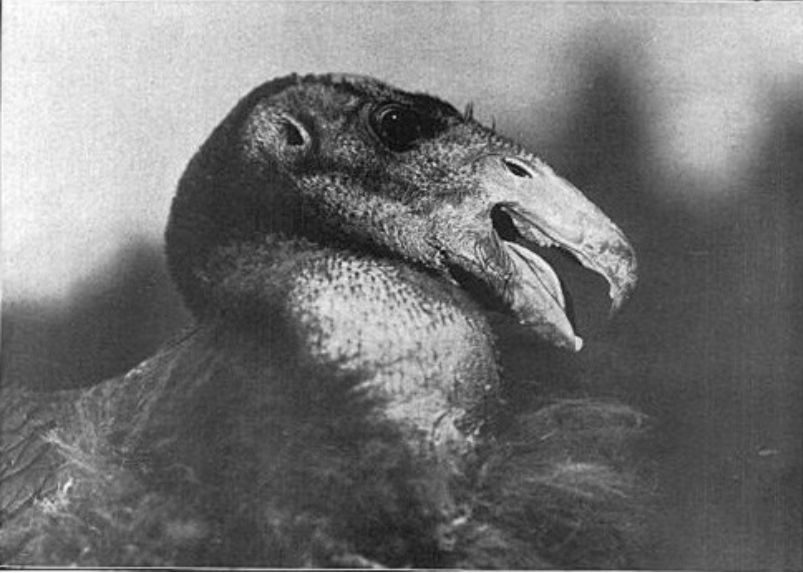


As for those who held dim views of the California Condor, and of vultures in general, Finley wrote:

In the absence of his own kind, General took human companionship not passively, but he showed that it pleased him. Why should such a creature be revolting? He was not ugly to me. It was not only the outward appearance but the inner nature of the bird that we learned to know. He was not stupid, contrary to some writers. He saw everything. He had a temper and showed anger when there was cause. At other times he was gentle and always ready to be petted. Behind his rough exterior and his appearance of savageness, this young condor showed a nature that was full of love and gentleness.

By September of 1906, General had fledged and was practicing short flights. Finley, though surely proud of his charge's progress, began to worry that he would fly off or be shot (not necessarily in that order), an all-too-common fate of Condors at the time.<sup>[126]</sup> The prevailing attitude towards Condors among turn-of-the-century Californians was typified by the fate of General's mother, who was shot dead by a "collector" in 1908, then stuffed, mounted, and offered for sale at the price of \$100.<sup>[127]</sup> And so, on September 28, General was sent by train across the US to the Bronx Zoo, where he would reside outdoors in a large flight cage during the summer, and indoors during the winter. That zoo was one of the very few to already possess a California Condor, which was kept in the same cage as General. The two Condors "immediately became fast friends" and seemed to enjoy each others' company; but less than two weeks after General's arrival, his companion died of unknown causes.

General was thus condemned to spend the remainder of his life alone, save for a brief visit by Finley a couple of years later (when Finley "found him as affectionate as ever"<sup>[128]</sup>), although perhaps he could have taken some consolation in being an ambassador for his species. Fewer than ten other California Condors were publicly exhibited in captivity at the time (three in Europe,<sup>[129]</sup> and the remainder in the US);<sup>[130]</sup> and General, residing at one of the largest and most famous zoos in the world, became a bird of some fame. Although like all other captive vultures the lessons he taught to his viewers were not always beneficial to either party, General at least made the people of the northeastern US, where the nation's political and financial power was centered, aware of the existence of his kind. At the time, the California Condor was a semi-mythical creature in the minds of most Americans, as unfamiliar and of as little concern as any animal from the deepest sea or darkest jungle. Whatever a visitor to the zoo saw in General - a magnificent vulture or a big, ugly "buzzard" -



they couldn't ignore his flesh-and-blood presence, his reality, and the certainty that one of the world's supreme scavengers was standing confidently before them and staring back at them with curious yet inscrutable deep red eyes.

That revelation may have been too much for one visitor to deal with. On December 14, 1914, after more than eight years at the zoo, General died after swallowing a rubber band that someone threw into his cage.<sup>[131]</sup> If it fell to us to write his epitaph, we might say, "He helped to save his species" - for General proved that far from being hopelessly intolerant of humanity, as

so many had claimed, California Condors could thrive in captivity if given proper care and attention; and so he played a part in laying the foundation for the recovery program that would be enacted when the California Condor teetered on the edge of extinction in the wild.

For all of its notoriety and controversy, the program to breed California Condors and return them to the wild is far from typical of vulture reintroductions, or of animal reintroductions in general. Only rarely does the fate of an entire species hinge on a reintroduction program, as it did with the Condor; and even more rarely does the animal in question have such a strong emotional stake in the minds of so many people as does the Condor. Still, the California Condor program does illustrate many of the problems that this sort of project must face, and conquer, to be successful. Since the last California Condors were taken into captivity in 1987, there was never any question about whether the species should be reintroduced into the wild; the only question was where, and when, this should happen. While the Sespe Condor Sanctuary where the last Condors were captured was obviously capable of sustaining the birds, many questioned the wisdom of putting the Condors back there if the lead poisoning threat that had killed so many birds still remained. The sanctuary was also infested with Coyotes and Golden Eagles that might be dangerous to young Condors with no experience of the wild, and with Ravens that would assuredly attempt to prey on eggs and chicks once the released Condors reached breeding age. There were other historically inhabited areas where the Condors might be released - other parts of California, along the Columbia River in Oregon, or in the Grand Canyon region of Arizona - but these sites had their own problems, particularly rampant urbanization and scarce or unpredictable supplies of carrion.

Despite the potential dangers, the experiment had to be put into motion with living Condors. Fortunately, there was a ready supply of the much more common Andean Condors that the program could utilize when testing the suitability of reintroduction. Although the California and Andean Condors are different in many respects, they're similar enough in behavior that Andean Condors were considered to be suitable test subjects for the reintroductions in lieu of their too-rare-to-risk cousins. From 1988 to 1990, 13 Andean Condors were released into the Los Padres National Forest by the Los Angeles Zoo and the US Fish and Wildlife Service. The birds were all female, to avoid any chance of the species actually breeding and colonizing Southern California. Three of these Condors died; the remaining ten adjusted to the wild successfully, and were able to feed themselves. At the end of the trial, the surviving birds were recaptured and sent to Columbia, to aid in that country's own Condor reintroduction programs.



Their potential for survival no longer in doubt, the real California Condors were then prepped for release. Some of these young birds had been raised via the “hand puppet” technique, originally



developed by the Bronx Zoo, in which highly realistic puppets fashioned to look like adult Condor heads are used to feed, groom, and comfort Condor chicks who cannot be reared by their biological parents. Since 1980, this technique has been used to rear hundreds of condors of both species<sup>[132]</sup> (and a variety of other large birds as well). Even so, there were fears, which proved to be justified, that the young Condors might have become too habituated to the presence of humans. They thus had to undergo "aversion therapy," which included being forcibly caught by hand and then briefly hung upside down in order to make them fear humans, and receiving mild electric shocks from simulated utility poles in order to discourage the birds from perching on such potentially lethal structures. Finally, amid much fanfare, two California and two Andean Condors were released into the Sespe Condor Sanctuary on January 14, 1992,<sup>[133]</sup> ending the almost five-year gap of a California without any of its native "griffins" flying freely. Further reintroductions proceeded apace, including releases in the Grand Canyon area of northern Arizona starting at the end of 1996; along the Big Sur Coast of central California in 1997, in Baja California, Mexico, beginning in the autumn of 2002; and at the Pinnacles National Monument area in central California at the end of 2003. A possible reintroduction of the Condors into New Mexico had to be abandoned due to lack of funds; and as of this writing, reintroduction into the Condor's old haunts in Oregon is in its planning stages.

As expected, the young Condors, which usually were released without any

adult birds to guide them and lay down good behavioral examples, experienced many problems in the wild. Quite a few of them died; some from lead poisoning, some from drinking chemicals, some from crashing into power lines, and some from Golden Eagle, Coyote, or human attacks. And others proved to be far too unwary, or downright friendly, in the presence of people, and so were recaptured and impressed into the captive breeding population. Even so, the survival rate for released Condors was

about 80%, similar to that seen in reintroduction programs for other vultures and for large birds of prey in general, which pretty well disproved the oft-repeated theory that the Condors were somehow more ill-adapted to their environment than other birds. The truly critical test of the success of the recovery program lay not in mere survival of the birds, but in the ability of released Condors to reproduce; and all persons involved with the Condors waited with bated breath to see if they could do this. The first egg laid by a wild pair was discovered in 2001. Unfortunately, it proved to be addled, and would never hatch; but the opportunity to give a pair of young reintroduced birds practical experience with parenthood couldn't be passed up. The addled egg was thus replaced twice: first with a ceramic fake, then with a genuine, ready-to-hatch egg that had been laid and incubated in captivity. It was hoped that the experience of caring for a newly hatched chick, even if ultimately unsuccessful, would give the parents experience that would prove invaluable the next time they tried to breed.<sup>[134]</sup>

The following year, no fewer than three pairs of Condors laid eggs, all of which hatched, producing the first wild California Condor chicks the world had seen in 18 years. But all three of the youngsters died before fledging, most likely from ingesting the bottle caps and assorted junk that had been inadvertently fed to them by their parents as substitutes for the bone fragments that young Condors need as mineral supplements. Another chick was hatched in California the following year, but it, too, died not long after. The first wild-hatched chick to survive past fledging appeared not in California, but in the Arizona population in 2003.<sup>[135]</sup> In 2004, a Condor pair from the California population managed to raise a chick to fledging, the first in the Golden State since 1982 – and it was doubly notable because both of the chick's parents had been hatched and raised in captivity. Successfully raising chicks in the wild has proven to be the single most difficult hurdle for the Condors to overcome; by the beginning of 2009, only seven chicks had successfully fledged without human assistance.<sup>[136]</sup> As of this writing, there are just under 400 California Condors in the world, split between several facilities in captivity and between four different wild populations: Southern California, central California, Baja California, and Arizona. Though even the former two release sites are more than 120 miles (190 km) apart, it's also hoped that there will be some contact between birds from different populations, and there are small but encouraging signs that such contact is taking place.<sup>[137]</sup> This means that one of the overarching goals of the Condor program - namely, establishing a Condor population that ranges freely throughout southwestern North America - is now genuinely attainable.







The other overarching goal, of ensuring that the Condor populations become self-sustaining, is likely to prove more difficult. None of the populations is anywhere near being able to maintain its numbers without human assistance, and the realistic assessment is that none of them ever will be as long as lead poisoning is still a problem. The only Condor population for which lead poisoning *isn't* the most serious threat is that in central California, which is fortunate enough to have access to areas of seashore largely undisturbed by humans. Many of these birds feed heavily on the carcasses of sea mammals, which present little threat of lead poisoning. Elsewhere, poisoning by ingestion of bullets or bullet fragments is still the single most common cause of death for California Condors, and at times the threat of it has required drastic intervention to prevent the birds from dying en masse.<sup>[138]</sup> Moreover, lead doesn't necessarily kill the vultures outright; as with humans that ingest the metal, Condors may suffer nervous damage that impairs their ability to think and act, and such damage could easily result in fatal misjudgments. Recently, in the United Kingdom,

autopsies of swans that had died from colliding with overhead wires discovered that most of these birds had abnormally high levels of lead in their blood,<sup>[139]</sup> which likely contributed to their accidental deaths. It's difficult to avoid speculating that at least some of the strange, seemingly counterproductive behavior on the part of reintroduced Condors may be attributed to hapless birds whose brains were no longer functioning at full capacity, thanks to the lead festering in their bellies. But the Condors are not without sympathizers within the hunting community, and lead ammunition has recently been banned and replaced with similarly effective but nontoxic copper ammo in the areas of California frequented by the Condors. There's also some impetus to [phase out lead-based bullets](#) within the US as a whole, thanks to increasing awareness of their ill effects upon people and all sorts of wildlife.<sup>[140]</sup> All of that said, the California Condor is still a critically endangered species, and is likely to remain so for the foreseeable future.

Some of the personnel working on the Condor recovery program had been much influenced and inspired by an earlier vulture reintroduction project; one that, for many biologists, is the very model of a successful wild animal reintroduction. This was the project undertaken to reintroduce the Eurasian Griffon to the Causses Mountains, part of the elevated Massif Central area of southern France. The last remnants of the wild Griffon population had vanished from the Causses around 1945; but a mere 23 years later, a program to reintroduce the Griffons to their old haunts was agreed upon and put into motion. As pastoral Sheep-rearing was still common in the area, there wasn't any question of a food shortage for the Griffons; however, it was crucial that the goodwill of the local population be obtained. Specifically, hunters and ranchers were educated about the beneficial effects of the birds, and ranchers were assured that the Griffons would never be potential Sheep predators. It was also important that the use of strychnine was prohibited in the area, as strychnine-laced bait had played a major role in the demise of the original Griffon population.

It was originally planned that in this project, as in most programs to reintroduce birds of prey, only young birds that hadn't yet reached breeding age would be released, in the hopes that they would



prove better able to adapt to the new conditions than would adult birds which were more set in their ways. Unfortunately, an attempt to release juvenile Griffons into the Causses in 1970 failed because the young birds wandered off, perhaps in an attempt to find the nearest breeding colonies of their kind (which were more than 300 kilometers (186 mi) away).<sup>[141]</sup> As a result, it was decided that the next attempt would be made with adult birds, which could be expected to immediately establish a breeding colony and stay put as long as there was sufficient food. But the next release would have to wait until a sufficient number of captive birds without behavioral problems had been gathered.

When 1981 rolled around, it was decided that the time was ripe. (One Griffon had actually jumped the gun and escaped from its enclosure in 1980.)<sup>[142]</sup> Final preparations were made; a number of vulture restaurants were constructed, fenced-off areas of from 100 to 400 square meters (1,075 to 4,300 ft<sup>2</sup>) that were supplied with a steady supply of carcasses from local farms and slaughterhouses. The restaurants began to be supplied even before the Griffons were released, in order to attract smaller scavengers like Carrion Crows and Ravens. The movements of these birds would in turn attract the Griffons, thus sparing them the trouble of having to search for the restaurants directly.<sup>[143]</sup> The caves and ledges of the cliff that had harbored the last known Griffon colony in the area were painted white in order to mimic the droppings, and thus the occupancy, of the birds, and so encourage the released Griffons to nest there.<sup>[144]</sup>

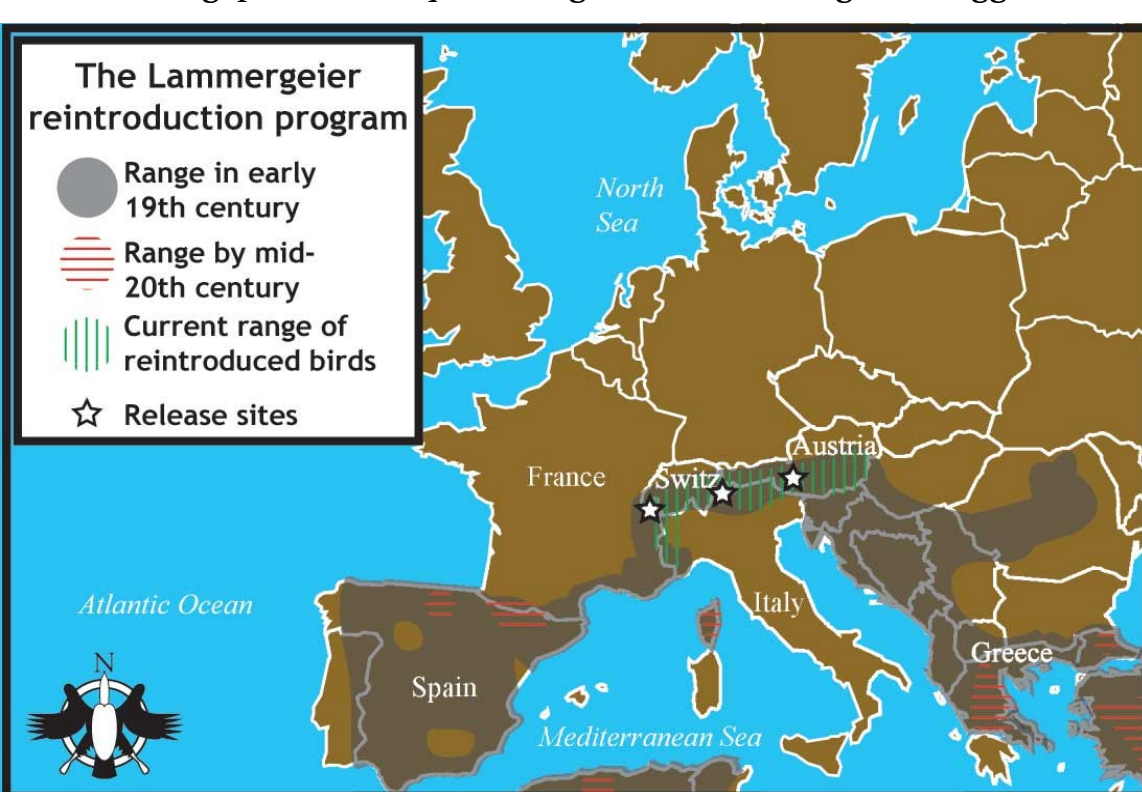
Over the next five years, about 25 breeding pairs of Eurasian Griffons were released into the Causses, with the expectation that after 1986, the colony thus formed could maintain itself without any further intervention.<sup>[145]</sup> The releases themselves weren't problem-free, as many of the Griffons had been in captivity without any opportunity for proper flight for five years or more; when these birds were set free, they faced a steep curve in learning how to soar again. Such out-of-shape vultures could get around only by using energy-draining flapping flight for the first two to four weeks after their release; and being quite unable to wander scavenge properly with such inefficient flight, they couldn't find food either. A number of Griffons thus starved to death, although one notable bird managed to survive for three weeks without a bite to eat. Fortunately, after this awkward adjustment period the Griffons learned how to use the winds and thermals properly, and were able to fly with a minimum of energy expenditure, as a vulture should. Birds that had been in captivity for a year or less had far less trouble; they could soar properly in under two weeks. Some released birds that made a habit of perching on utility poles also died from electrocution,<sup>[146]</sup> the survival rate for the Griffons during their first year after release was thus only about 75%. Once adjusted to the wild, the annual survival rate of the released birds is on the order of 98%,<sup>[147]</sup> which is about what would be expected for a genuinely wild population of large vultures.

The education program demonstrating the benefits of the Griffons to the local people proved to be successful, as there was no deliberate shooting or poisoning of the released vultures during the reintroductions.<sup>[148]</sup> Ever since the Griffons began to breed in 1982, the number of clutches in the colony, and the number of pairs that succeed in raising young, has steadily increased from year to year.<sup>[149]</sup> And the survival rate for young birds is about as high as that of the adults,<sup>[150]</sup> suggesting that there is ample food to be found. After 1985, the Griffons have fed almost exclusively on livestock carcasses produced by local farmers, which are either moved to the vulture restaurants or simply left in the field by farmers, allowing the Griffons some semblance of natural searching patterns.<sup>[151]</sup> By the mid-1990s the colony's population had increased twofold, to about 100 total birds of all ages.<sup>[152]</sup> An unexpected but welcome effect of the colony's success was that it began to attract vultures from elsewhere. Before long, Griffons from the nearest wild populations in central Spain and the Pyrenees Mountains straddling France and Spain were appearing in the Causses colony, despite its isolation;

and in 1988, a pair of Egyptian Vultures settled nearby, perhaps encouraged by the proximity of their larger cousins.<sup>[153]</sup> As a result of this program's success, it was decided that two later Griffon reintroduction projects - one in Friuli, northern Italy and one in the French Alps - would follow its procedure of releasing adult vultures instead of young ones. When and if these two projects reached fruition, it was expected that the Griffons would begin to travel between the three colonies, thus establishing a Eurasian Griffon population throughout southern Europe for the first time in centuries.<sup>[154]</sup>

Efforts to reintroduce the most notorious denizen of the European Alps took much longer to germinate. Proposals were floated for the reintroduction of the Lammergeier into the Alps almost as soon as it was hunted to extinction there at the end of the 19th century, but the first of these to progress as far as an actual attempt was that in 1972, when ten wild-caught Lammergeiers were imported from Russia and Afghanistan and released. The attempt failed, and after that importing more birds was out of the question, due to the recognized decline of the species throughout its entire range and resulting restrictions on its trade. But, just when it looked as though the Alps were destined to be forever bereft of their most magnificent birds, Europe's captive Lammergeiers came to the rescue. In 1973 and 1974 the Lammergeiers in Alpenzoo Innsbruck, Austria, bred successfully over and over again, an unheard-of feat for captive birds at the time. The resulting young birds would provide the stock to repopulate the Alps with Lammergeiers; only birds reared in captivity would be used for the reintroductions. This project was ambitious both in its scope and in the amount of cooperation that would be required from all participants, namely the governments of the Alpine nations (Austria, France, Germany, and Switzerland), several conservation organizations including the World Wildlife Fund and the Frankfurt Zoological Society, and many European zoos. The Bearded Vulture Project, as it became known, was intended to be a long-term enterprise lasting roughly 20 years; but its first aim was to establish at least 10 pairs of steadily reproducing Lammergeiers in captivity before any reintroductions were attempted. This was troublesome because Lammergeiers present a captive-breeding problem unique among vultures: although two eggs are usually laid and hatched, the

younger of the two chicks never survives for long; it either starves to death, or it is killed by the older chick, in a phenomenon known as *cainism* that also occurs in a number of other bird species with multiple-egg clutches. The death of half of all the chicks that hatched obviously wouldn't be desirable when trying to build up a population, and so the second-hatched chicks of captive pairs were removed from the nest as soon as they hatched.



They could then be hand-reared and returned to the nest after the murderous instincts of their siblings had subsided, or given to foster pairs of eggless Lammergeiers to rear.

After much scouting, a valley in the Hohe Tauern Mountains of western Austria was chosen as the best release site. The Lammergeiers would be placed in an artificial nest when they reached three months of age, one month before fledging and gaining the ability to fly. Leaving vulture chicks in a nest without any parental protection may seem hazardous, but it did ensure that the young birds would become used to the sights and sounds of the wild, and that they would be independent of any human support once they fledged. Although they couldn't fly, at the age of three months the birds would already be too large and formidable to be attacked by predators, like Ravens, that might prey on smaller chicks. As further protection from any potential predators, an adult "nurse" Lammergeier, unable to fly but well able to defend its own kind, would be placed on the ledge with the chicks during their first days in the wild. The ledge would be guarded and supervised at all times, but the food for the chicks would be thrown onto the ledge without them being able to see any humans, ensuring that they wouldn't adopt the dangerous practice of associating the sight of humans with food.

The first three young Lammergeiers were placed on the ledge on May 25, 1986, followed by a fourth about two weeks later. They experienced few difficulties on their ledge, and the first to fly left the ledge on June 10, with two others joining it a few days later. With surprising quickness, the young vultures developed consummate skill and grace in the air, ensuring that they could easily outfly mobbing Eurasian Griffons and Golden Eagles; and they confidently flew in all conditions, snow, thick fog, and pouring rain not excepted. They also quickly became independent in their foraging, feeding readily on the carcasses of Chamois and Sheep killed by the area's frequent avalanches, and seemed to prefer this natural fare to the food that was still left out for them at the release site. By August, at the tender age of about six months, the birds were experimenting with the trademark behavior of their species, bone-breaking. Although they at first tried it with unsuitable objects and soft surfaces, they soon became quite proficient at it and were gleaning much of their food from shattered bones.

The young birds flew over wider and wider areas through September and October; often returning to the site where they had been released, but rarely touching the food that was still left for them by their human caretakers. They hung around their old ledge more often during the first heavy snowstorms in October, but the winter proved no obstacle to them, as the beginning of hunting season and the frequent avalanches provided abundant food. Throughout the winter, recently released young Lammergeiers were often seen feeding on avalanche-killed animals alongside the area's resident Golden Eagles. The only sour note was struck by the youngest of the four birds, which accidentally fell into a river as it was trying to reach some carrion. It reached the bank of the river safely, but its waterlogged plumage was quite frozen and it would most likely have died of hypothermia shortly afterwards, so it was taken back into captivity. The remaining three birds continued to do well; in May 1987, two of them were seen practicing courtship flights, performing the spectacular cartwheels so characteristic of Lammergeiers and flying together in double-decker formation. This left the remaining female an odd bird out; but in the same May two more young birds were placed on the same ledge from which she was released, and her attention immediately focused on them; indeed, she seemed to act as a guide for them. The new birds also adapted well and soon learned bone-breaking. A second release site in Haute Savoie, France, was used to release three birds in 1987, and a third site in the Engadin Valley of southeastern Switzerland saw another trio released in 1991.<sup>[155](#)</sup> By the year 2000, 88 Lammergeiers had been released into the Alps, and about 60 of those had managed to survive.



A public relations campaign undertaken before the reintroductions ensured support for the project among the people of the area, especially the hunters. The long absence of Lammergeiers from the Alps may have inadvertently helped this effort, as it allowed the old stories of Lammergeiers attacking livestock and humans to lose their currency. Reintroduced vultures aren't the subjects of legends, or myths, or religious allegories – although if radio-tagged vultures are captured or found dead by persons ignorant of the reasons why the birds carry small electronic devices, they may be interpreted as “spy vultures”<sup>[156]</sup> - and it's certainly difficult to conceive of anyone informed about their situation regarding the birds with dread. But there still remains the simple joy of watching an enormous bird in graceful, seemingly effortless flight. The modern admiration and support for the Lammergeiers certainly is hard to reconcile with the “kill the baby-snatchers” attitude prevalent only a century ago; but time, and aesthetic pleasure, seem to have healed that particular rift.

The endeavor to reintroduce the Andean Condor to Venezuela also had to deal with a prolonged absence of the vulture in question, but here the long-gone status of the vultures became a problem. Venezuela's Condor population had declined almost to the point of nonexistence by the middle of the 20th century, and the species was officially declared extinct in the country in 1960;<sup>[157]</sup> as a result, older Venezuelans simply forgot that the birds existed, and younger Venezuelans never learned about them. This was a major impediment for Venezuela's recovery program for the Condor; it's difficult to get people to support a “recovery program” for something that they had forgotten even existed. Therefore, one of the first steps taken by the program was to “bring back the spirit of the condor.” Staff from the recovery program visited more than 2,000 schools throughout Venezuela (especially in the rural areas where the birds would soon be set free), talking to students about the Condors and providing Condor-themed games as educational tools. And the owners and proprietors of anything and everything that could be named after Condors were encouraged to do just that. This effort was a resounding success; in just over a decade, the image of the Andean Condor became very nearly as ubiquitous in Venezuela as that of the Bald Eagle had become in the United States over more than two centuries. Dozens of stores, companies, and hotels carry “Condor” in their names, and the reintroduced vultures have once again become a source of pride for many Venezuelans.<sup>[158]</sup>

The 20th century had been a fairly bleak period for vultures in general; the civil lifestyles that some vultures had adopted in order to survive contact with humanity had collapsed in much of the world, and persecution, disruption, and habitat destruction, all exacerbated by increasingly poor opinions of the birds, had taken a terrible toll of the vultures still living primal and pastoral lifestyles. But, thanks to people like the dedicated souls who brought back the “spirit of the condor,” things were looking up for many vultures as the century drew to a close. The precipitous local declines of some vulture species had ceased thanks to protection and general awareness, several species had been reintroduced to areas from which they had been extirpated – first and foremost in Europe, which had long been a hopeless area for vultures - and the California Condor had even been saved from what many pessimists claimed was an absolute certainty of extinction. With at least seven different successful reintroduction programs involving vultures - some still ongoing, and with more yet planned - the various vulture restaurant programs, the establishment of a great many sanctuaries and parks to protect them, and intensive captive breeding programs for several species, by the end of the 20th century the vultures as a whole were receiving more attention from conservationists than almost any other birds. And it wasn't a moment too soon, because the century would be closed by a tragedy on an almost unimaginable scale for the vultures of India and the surrounding area.

The populations of the three species of griffon that traditionally inhabited lowland India in large numbers - the [White-rumped Vulture](#), Slender-billed Griffon, and Indian Griffon - remained

strong into the late 20<sup>th</sup> century, although the former two species were in difficulty elsewhere. As previously mentioned, the White-rumped and Slender-billed species had almost entirely disappeared east of India, probably due to the decimation of large mammals by hunters and increasingly few opportunities to eat dead livestock.<sup>[159]</sup> India, with its herds of sacred Cattle and still-teeming (though greatly reduced) wildlife, offered no threat of starvation for vultures. Even in Delhi, India's second-largest city, there were nearly three White-rumped nests per square kilometer (about 7.75 per mi<sup>2</sup>) in the 1970s, and groups of several thousand birds routinely gathered at carcass dumps;<sup>[160]</sup> at night, large roosts of vultures could be seen in the city's built-up central district.<sup>[161]</sup> The age ratios of these urban White-rump populations were unusual; unlike in primal populations where adult vultures vastly outnumber juvenile and immature birds, Indian cities held about five young vultures for every four adults.<sup>[162]</sup> This suggests that there was an overabundance of food for the birds, allowing survival for practically all of the young vultures that fledged successfully and ensuring that the urban populations would steadily grow.

The atypical presence of such a great number of large vultures in urban areas was not without its problems. It's been estimated that from the 1960s to the early 90s, White-rumped Vultures were involved in over 17% of all bird-aircraft collisions in India. The only birds of prey that topped this figure were India's countless Black Kites, which were less dangerous to aircraft than Vultures due to their much lower body masses. Unlike most bird strikes, those involving Vultures overwhelmingly took place outside of airports; but almost half of them took place over urban areas, and that, coupled with the fact that a plane struck in flight by a twelve-pound (5.5 kg) White-rump was likely to suffer expensive if not life-threatening damage, led to a backlash against the urban Vultures.<sup>[163]</sup> The most obvious recourse was to simply remove the food supply that had led the birds to urban habitats in the first place, and so Indian authorities led campaigns to close down carcass dumps and modernize the many primitive slaughterhouses and bone mills in the country. In some areas, the birds were also attacked directly, usually by shooting. By the mid-90s India's griffon population had been reduced to about half of what it was 20 years earlier, with the urban griffons accounting for most of the losses.<sup>[164]</sup>

In 1996, ominous signs began to appear that all was not well with India's griffons, and not just those inhabiting the cities. Carcasses of wild and domestic mammals which ordinarily would have attracted great aggregations of the birds lay untouched by any scavengers except Dogs and crows. Griffon colonies that had hosted scores of birds in their prime declined to only a few pairs, or vanished entirely. It wasn't long before reports began to circulate of large numbers of griffons being found dead or dying, and researchers were compelled to look into the status of the iconic vultures that were once thought to be virtually invincible. One of the first griffon populations to come under scrutiny was that of Keoladeo National Park in northwestern India. More than 350 White-rumped Vulture nests in active use had been counted in the park during the late 1980s. For the breeding season of 1996-97, only half of those nests were still in use; the total then dropped abruptly to 25 in 1997-98 and just 20 in 1998-99. By 2000, Keoladeo had no more breeding pairs of White-rumped Vultures. It was estimated that the overall vulture population of the park plummeted by 96% during these few years; by 1999, most of the large animal carcasses sighted in the park attracted no vultures at all, and those that did had only small gatherings of less than 20 birds.<sup>[165]</sup>

The odd pattern of vulture mortality that would soon become familiar throughout the Indian subcontinent was first seen in this park, in early 1997; and the truth of just what had happened to all of those vanished vultures proved to be curiously undramatic. In Keoladeo, White-rumped Vultures were seen perching in trees for weeks on end without moving or doing anything other than dozing off, drooping their heads lower and lower, until their bills hit the branches upon which they perched

and awoke them with a start. After an average of 32 days of this inactivity, the Vultures would abruptly fall from their perches to the ground, and then die in a matter of minutes. Others died in the trees, leaving their bodies entrapped by the branches, and the dead vultures merely hung there and slowly decomposed until the remains were scattered away by the wind.<sup>[166]</sup>

The conservation organization BirdLife International reported in 2000 that vultures “were found dead and dying in Nepal, Pakistan and throughout India, and major declines and local extirpations were being reported.”<sup>[167]</sup> The events seen in Keoladeo recurred over and over again: vulture colonies drastically declined to near-nonexistence, carcasses went uneaten, and the once ubiquitous vultures were no longer seen. At first, the mortality seemed to be largely confined to the griffons, the large carcass-dependent vultures of the genus *Gyps*, and appeared to afflict the birds only in the lowlands; the Eurasian Griffons and migrant Himalayan Griffons which normally inhabited higher areas disappeared only at lower altitudes. The usual culprits for drastic vulture declines, such as habitat loss, lack of food, and direct persecution, clearly didn't apply here. Aside from the aforementioned situation with the urban abattoirs and bone mills, there was no evidence that the food supply for the griffons had altered in any way during recent years. If that had been the case, then other scavengers like kites, crows, and feral Dogs would also have been severely affected, but they clearly weren't. Nor did the pattern of decline differ between areas where the vultures and their habitat were officially protected and areas where they weren't; in all cases, the local drops in numbers of White-rumped Vultures and Indian Griffons were over 90%.<sup>[168]</sup> By 2000, the Slender-billed Griffons in northern and eastern India were also found to be disappearing quickly.<sup>[169]</sup>

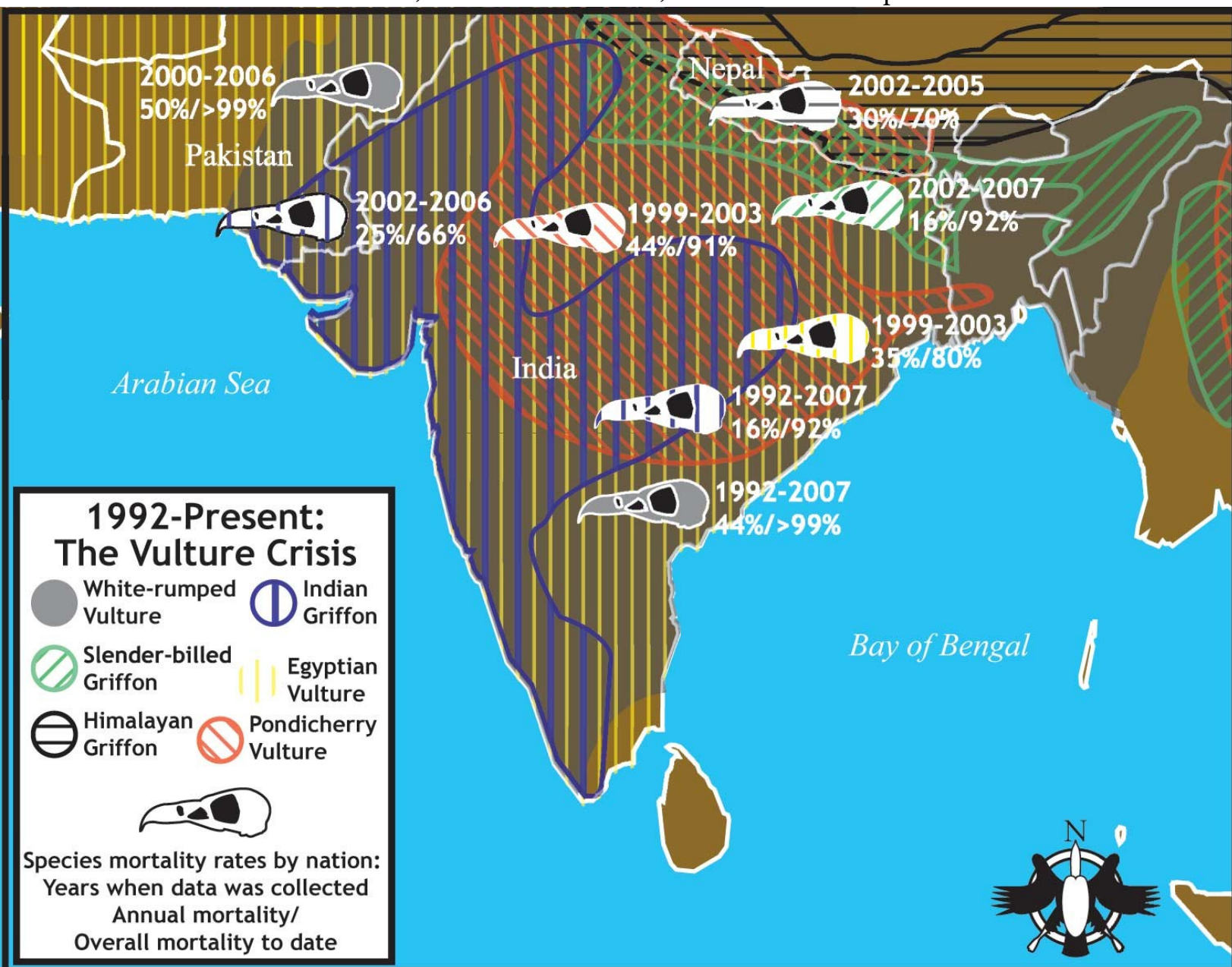
As a result of the sudden flood of reports of drastic griffon declines in India and Pakistan, a conference on the subject was convened by Asad Rahmani, director of the Bombay Natural History Society, in August 1999. At this conference, in the first confused stages of what became known as the Vulture Crisis, there was no shortage of theories proffered in attempts to explain what was happening. The most popular of these were a new or previously latent viral disease, poisoned carcasses, toxic pesticides, or toxic industrial chemicals like mercury or arsenic. The extreme speed of the decline, and its apparent indifference to local conditions, certainly suggested either a widespread environmental contaminant or a highly communicable and lethal vulturine disease.<sup>[170]</sup> Most of the people who were best informed about the situation leaned towards the disease hypothesis,<sup>[171]</sup> but no consensus was reached upon a definite cause, and so no action could be immediately taken.<sup>[172]</sup> Chemical poisoning remained a possibility; but, as one paper that followed the conference pointed out:

For a chemical to cause the widespread vulture declines recorded, it would need to have been either introduced de novo and applied across a huge geographical area or used previously and applied in a novel way that increased its availability to vultures within the last 10-20 years.<sup>[173]</sup>

In 2000, two simultaneous field investigations into the Vulture Crisis were undertaken: one in Pakistan, by the Ornithological Society of Pakistan and the Peregrine Fund of the US, and one in India by the Bombay Natural History Society and the UK Royal Society for the Protection of Birds. Both of these investigations initially focused on the hypothesis that a new or mutated disease had caused the Crisis, as it appeared to be the only conceivable explanation that matched the available evidence.<sup>[174]</sup> Necropsies of griffons that had died in both India and Pakistan revealed that though the dead vultures were otherwise in good condition, they had severe visceral gout; a condition resulting from kidney malfunction, in which uric acid that would normally be excreted instead accumulated in the body.<sup>[175]</sup> As the gout was found in dead griffons everywhere, regardless of location, it was strongly suggestive that one single factor had caused the Crisis throughout the entire region. However, in all cases it was



discovered that the gout had occurred only a few hours before the death of the bird. This meant that the gout wasn't killing the birds in and of itself; it was a symptom, not a cause.<sup>[176]</sup> Presumably it was a side effect of some other disease, or of a toxic chemical; but still no such culprit revealed itself.



At this point, the backgrounds of two members of the team working in Pakistan became important. Veterinarians working with domestic animals had long known that one of the possible side effects of certain veterinary drugs was kidney failure, which if untreated would result in gout. Of course, this arcane fact wasn't common knowledge among wildlife biologists; but fortuitously, two members of the team that the Peregrine Fund had sent to Pakistan were veterinarians, Drs. Lindsay Oaks and Martin Gilbert. Their suggestion was that a veterinary drug might be causing the gout and kidney failure seen in the dead vultures, and so veterinarians and drug suppliers in Pakistan were surveyed in order to identify any commonly used drugs that could both be ingested orally and were known to be toxic to kidney function. Only one drug met these criteria: a compound known as diclofenac.

This was one of a new crop of medications concocted in the 1960s, collectively known among medical practitioners as non-steroidal anti-inflammatory drugs, or *NSAIDs*. Diclofenac had originally been developed for human use, and only recently been adopted for animal husbandry, where it could be used to treat conditions like lameness or inflammation of the udder in Cattle.<sup>[177]</sup> It was immediately realized by the researchers that the most likely way a vulture could be exposed to diclofenac was by eating the carcass of a domestic animal that had been treated with the drug. Some detective work revealed that in Pakistan, diclofenac was sold by a number of different companies for the purpose of treating all kinds of livestock. A survey of more than 80 drugstores and veterinarians in the Punjab and Sindh Provinces found that all of them sold the drug, and that most of them had begun to sell it only during the last five years.<sup>[178]</sup> And careful study of dead vultures collected at a variety of sites by the team from 2000 to 2002 revealed that traces of diclofenac could be found in all of the birds that had died of kidney failure, but in none of the birds that had perished from other causes.<sup>[179]</sup> Armed with this information about the proven effects of diclofenac, the feeding habits of the griffons of Pakistan and India, and the patterns of mortality that had emerged from study of the Vulture Crisis, the veterinarians and their team formulated a hypothesis: the vultures were dying from poisoning of this or a similar drug, after consuming it in the carcasses of the domestic animals that they fed upon.<sup>[180]</sup> The hypothesis still had to be tested. First, four captive White-rumped Vultures were given oral doses of diclofenac in differing amounts: two high, two low. Both of the high-dosed birds and one of the low-dosed birds died of kidney failure and visceral gout between 36 to 58 hours after taking the drug. Then additional vultures of the same species were fed meat from buffalo or domestic goats. The test cases received meat from animals that had been injected with diclofenac at the recommended veterinary dosage; 65% of these birds died, in the same circumstances as the birds that had been given oral doses of the drug. The control group, given meat from animals that hadn't been injected, all survived with no signs of gout.<sup>[181]</sup>

At long last, the culprit of the Vulture Crisis was revealed. Diclofenac poisoned vultures by leaching into their bodies after they had ingested carcasses of domestic animals that had been treated with the drug. It accumulated in the kidneys of the birds, causing the failure of those vital organs and sickening them with visceral gout before finally killing them. The "drooping neck syndrome" reported in sick vultures that died shortly thereafter was actually a tell-tale symptom of advanced diclofenac poisoning. Mercifully for the vultures, diclofenac was found to exist only in very low concentrations in water, and the drug was metabolized very quickly by both mammals and birds. This made any chance that the drug might bioaccumulate - remain in the ecosystem for an indefinite amount of time, as DDT and certain other chemicals do - very remote. No residues of diclofenac were found in the kidneys of any White-rumped Vultures that didn't suffer from gout, and even the captive vultures that managed to survive doses of the drug showed no traces of it shortly afterwards.<sup>[182]</sup> Oddly enough, this meant that while a vulture that fed on a livestock carcass laced with diclofenac would most likely die, another vulture that fed on the carcass of *that* vulture would probably be unaffected.

The results of this four-year-long study were initially published in the online edition of the science journal *Nature*, on January 28, 2004, under the title "Diclofenac residues as the cause of vulture population decline in Pakistan." Heeding scientific caution, the research team was careful to limit their initial conclusions to their study area of Pakistan; but as they pointed out, "The high rate of visceral-gout-associated vulture mortality in India as well as the widespread use of veterinary diclofenac in India suggests strongly that diclofenac may also be responsible for vulture declines in the rest of the Indian subcontinent wherever diclofenac is used for treatment of livestock."<sup>[183]</sup> The team added that the "potentially ecologically toxic effects of human and veterinary pharmaceuticals

are a growing concern", and noted that though there were documented records of scavenging birds being poisoned by pesticides, or by barbiturates used in livestock, "pharmaceutical residues have not been implicated previously as a cause of major ecological damage."<sup>[184]</sup> As a result of the team's findings, which were compared by some scientists to the landmark 1967 paper that suggested pesticides containing DDT caused the thinning of eggshells in Peregrine Falcons,<sup>[185]</sup> there was an immediate call for the withdrawal of diclofenac from veterinary use; not just in India and the surrounding countries, but everywhere. The trouble with attempting to replace diclofenac was that most of its potential substitutes were also known to affect kidney function in domestic animals, and thus might well have the same lethal effect on vultures.<sup>[186]</sup> Other studies have since demonstrated that diclofenac and similar NSAIDs such as ibuprofen are toxic to a wide range of other birds, including non-vulturine raptors, cranes, owls, and storks; and that Old World vultures native to Europe and Africa are just as vulnerable to the drug as their Asian counterparts.<sup>[187]</sup> Curiously, a 2008 experiment using Turkey Vultures of the New World revealed that these birds could ingest diclofenac at over a hundred times the lethal dosage for Old World vultures, without suffering any apparent ill effects, although it's not yet known if all New World vultures share this immunity.<sup>[188]</sup>

Fortunately, a viable alternative did shortly emerge from British laboratories in 2006. An NSAID called meloxicam, considered to be equally or more effective than diclofenac in treating livestock, it exhibited no discernible effects when it was experimentally fed to African White-backed Vultures at the maximum likely dose. The afflicted Indian vultures similarly ingested the drug with impunity. There was a problem with meloxicam, though: it cost about twice as much as diclofenac, because it was produced in smaller quantities, but it could easily be sold at an equivalent price if its production was stepped up, and if diclofenac was banned in India. The manufacture of diclofenac for veterinary purposes was duly banned in India in May 2006, and shortly thereafter in the neighboring nations of Nepal and Pakistan, with the intent that the drug would be replaced with meloxicam. It remained legal to sell the stocks of diclofenac that already existed, however,<sup>[189]</sup> and the Indian government still allows diclofenac to be manufactured and used in medications intended for humans, which leaves a very obvious loophole in its ban.<sup>[190]</sup> Fortunately, the ban still had a substantial effect; surveys of livestock carcasses in India one to two years after the ban was introduced found that the proportion of carcasses containing diclofenac had decreased by almost half, while the proportion of carcasses containing meloxicam had increased by the same proportion. Unfortunately, that's still more than enough poisoned food to kill India's vultures at an unsustainable rate, and it will likely take some years for diclofenac to fall out of use entirely.<sup>[191]</sup>

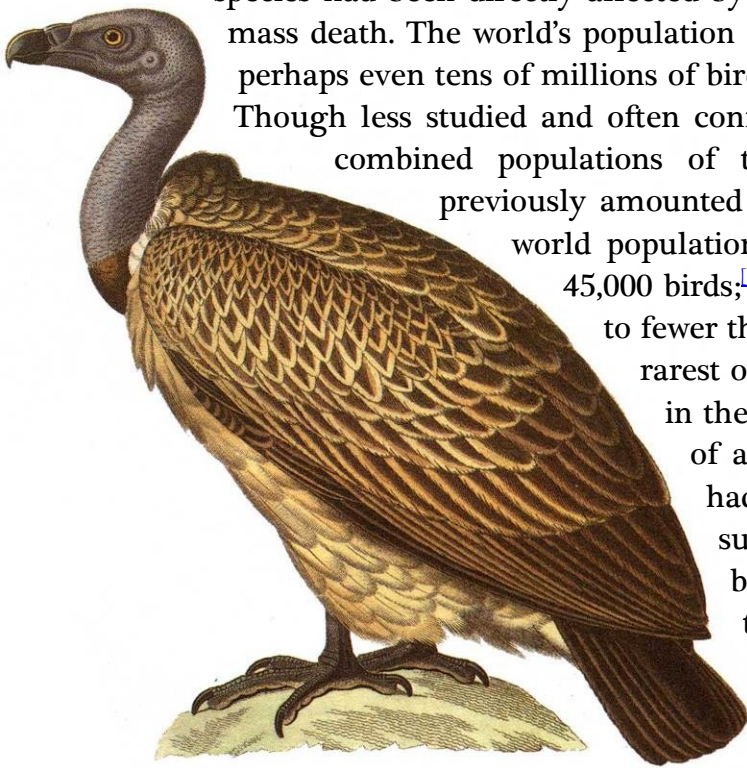
The widespread use of diclofenac as a veterinary medicine in India can only be attributed to the unique situation of India's Cattle; no other part of the world holds tens of millions of such animals that, instead of being slaughtered or left to die when ill or aged, are held sacred and accorded medical treatment to the very end.<sup>[192]</sup> Nevertheless, the Vulture Crisis has graphically displayed the perils that can befall vultures which are dependent on livestock for food. While the presence of domestic animals may allow vultures to survive after wild prey is gone, and in some cases even permit them to grow more numerous, in the modern world the birds eat this carrion with the threat of artificial chemicals hanging over their heads; and the presence of such chemicals need not be pervasive to prove lethal on a large scale. It's been calculated that fewer than 1% of the available livestock carcasses need have contained diclofenac to account for the catastrophic rates of decline among India's vultures; but a 2004-2005 study found that more than ten times that many carcasses held detectable amounts of the poison.<sup>[193]</sup> Vulture researchers had long suspected that the biggest potential problem with the dependence of some vultures on livestock were the chemical additives that the birds might ingest



with their food - medicines, hormones, and the like - but until 2004, no serious effects of these additives upon vultures had been reported.<sup>[194]</sup> In fact, the Vulture Crisis is the first documented case of a pharmaceutical product causing a significant ecological effect. Considering the remarkable cocktails of drugs and hormones at the disposal of ranchers and veterinarians worldwide, it's a wonder that vultures haven't been affected by them before; but then, they probably have, just not on such a large and noticeable scale. As a result of recent evidence that some vultures in Europe have also been affected by NSAIDs,<sup>[195]</sup> and that such reports can soon be expected from Africa, where diclofenac is still being aggressively marketed as a veterinary drug,<sup>[196]</sup> some scientists have argued that the Vulture Crisis should now be considered a pressing ecological problem not just in the Indian subcontinent, but across the entire Old World.<sup>[197]</sup>

Once it became clear what had happened in the subcontinent, it was obvious that the new millennium had brought what was probably the worst catastrophe to hit the world's vultures since the extinctions accompanying the end of the Pleistocene 10,000 years ago. At least seven different vulture species had been directly affected by the Crisis, and three of those had suffered immediate mass death. The world's population of White-rumped Vultures had declined from millions, perhaps even tens of millions of birds to fewer than 15,000, and possibly as few as 3,500.<sup>[198]</sup>

Though less studied and often confused with the White-rumped, it was thought that the combined populations of the Slender-billed Griffon and Indian Griffon had previously amounted to at least several hundred thousand birds. The total world population of the Indian Griffon is now estimated to be about 45,000 birds,<sup>[199]</sup> that of the Slender-billed Griffon probably amounts to fewer than 4,000.<sup>[200]</sup> The Slender-billed Griffon (left) is now the rarest of the Old World vultures, and the second-rarest vulture in the world after the California Condor. Thousands of years of adapting to humans and learning to live commensally had allowed these three species to achieve unparalleled success; but now it seems that this path was too perilous, because it placed too much trust in human actions. In the space of about five years, all three species were very nearly destroyed; not because of malice, or greed, or even indifference, but because of a seemingly minor and insignificant change in human habits.



Two lowland vulture species that were originally less common and less frequently seen at large carcasses than the griffons also suffered declines, though not simultaneously. Although the numbers of both Pondicherry and Egyptian Vultures remained stable through the mid-90s (at least in protected areas), starting sometime in 1999, both vultures took a drastic turn for the worse. By 2003, India had lost about 94% of its Pondicherry Vultures,<sup>[201]</sup> and almost 70% of its Egyptian Vultures.<sup>[202]</sup> Although it wasn't immediately obvious if the declines of these vultures could be attributed to the same cause that decimated the griffons - the losses of these more solitary and less livestock-dependent vultures could theoretically have been coincidental - it's now thought that diclofenac was also to blame for their losses. The reasons why the drug affected them later than the griffons can be chalked up to their different feeding habits, and to the usual dominance of the griffons over other scavenging birds. From 1996, when diclofenac was first used on a large scale, to 1999, it was the griffons that would have consumed the overwhelming majority of livestock carcasses, and so they would have borne the brunt of the drug's lethal effects. After the almost total collapse of the griffon populations in 1999, the

Pondicherry and Egyptian Vultures faced a world in which their more numerous and powerful competitors for carcasses were all but gone. With no griffons left to dominate them, these vultures ate far more large carcasses, in the form of diclofenac-laced livestock, than they normally would have, and so it was their turn to be poisoned in great numbers.<sup>[203]</sup> Though they were afflicted by the Crisis later and probably less severely than the griffons, these two vultures also suffered greatly; restricted as it is to South Asia, the Pondicherry Vulture is now also classified as a critically endangered species. The formerly abundant Egyptian Vulture now numbers no more than a few thousand breeding pairs in India; and its losses there, coupled with slower declines in Africa and Europe, have been enough to push the entire species onto the endangered list for the first time.<sup>[204]</sup>

In India, the consequences of the Vulture Crisis were a matter of grave concern to many people - particularly for communities that had depended on vultures to dispose of livestock carcasses - but none more than India's Parsis, the last adherents of the Zoroastrian funeral tradition of beholding that had been passed down for so long by their Persian ancestors. Zoroastrians had had to deal with threats to their beholding rituals before, but those threats had always stemmed from outside prejudices against their culture and beliefs; never before had there been a danger of beholding becoming extinct because of a lack of vultures. The vast majority of India's Parsis still dwelled in Mumbai, and placed their dead in the *dokhmas*, the Towers of Silence upon Doongerwadi Hill, where the vultures would predictably show up in great numbers almost every day to undertake their god-given task of purifying the bodies. At least, that was the situation until the late 1990s, when vultures suddenly vanished from Mumbai as from just about everywhere else in India.<sup>[205]</sup>

Vultures or no, the Parsi community still produced an average of three dead bodies per day, which had to be disposed of one way or another. Burial by earth or water was explicitly forbidden by Zoroastrian scripture, as was cremation, although a few Parsi corpses were still burned in crematoriums. Bodies could certainly still be taken to the *dokhmas*; but after the Vulture Crisis, the only scavengers that flew into the towers were comparatively minuscule crows and kites that could at best bloody the corpses over a period of days, whereas the vultures would have skeletonized them in under an hour.<sup>[206]</sup> Before long, the Parsi community was facing threats of lawsuits from wealthy Mumbai residents who were upset by the stench of rotting corpses wafting from the *dokhmas* up to their high-rise apartments.<sup>[207]</sup> Solutions were attempted; at a cost of 1.6 million rupees (\$52,000) the Parsis installed solar concentrators, essentially giant magnifying glasses, on the walls of the only *dokhma* that was kept open and functional, with the intention that the concentrated heat would allow the sun to dehydrate and thus "purify" the bodies. However, some Parsis felt that this method was just cremation by another name, and thus conflicted with Zoroastrian dogma; and since the concentrators had to be manipulated manually and could only focus on a small part of one body at any time, they were extremely time-consuming to use.<sup>[208]</sup> Furthermore, they didn't function at all on cloudy days, which presented a problem during Mumbai's lengthy monsoon season.<sup>[209]</sup> The attendants of the *dokhma* also briefly attempted to dispose of the bodies by dissolving them with chemicals, but this endeavor was quickly abandoned when the pallbearers refused to trudge through the thick layer of biochemical sludge left behind on the *dokhma* floor.<sup>[210]</sup> None of these options were fully satisfactory from either a practical or theological point of view. Despite the loss of the vultures, the Zoroastrian high priests were still of the firm opinion that adherents of the faith should use only scavengers, the rays of the sun, and the wind to dispose of bodies. In short, the problems presented to the 45,000 Parsis of Mumbai by the Vulture Crisis seemed intractable.

In the latter part of 1998, shortly after vultures had stopped showing up at the *dokhmas*, a revolutionary new idea was proposed: that an enormous aviary, large enough to house as many

vultures were needed to dispose of the daily supply of bodies, could be built around two of the towers upon Doongerwadi Hill. The "Doongerwadi Aviary Project," as it became known, was the joint brainchild of Khojeste Mistree, a Parsi religious scholar, and Jemima Parry-Jones, the owner and operator of the world's largest sanctuary for birds of prey in Gloucestershire, England. The project had its roots in a November meeting of the Parsi panchayat (assembly of elders), after which it directed that "at all costs the mode of *dokhmenashini* was to be strengthened and that a way should be found to augment the vulture population." After discussing the situation in India with Mistree, Parry-Jones was optimistic that an aviary could be built around the *dokhmas*, which would satisfy the Parsis' religious requirements and allow the birds to permanently live in Doongerwadi. Parry-Jones's preliminary report to the panchayat stated that as long as the proposed aviary was properly designed and constructed, and the captive vultures were given the best care, there wouldn't be any problem with keeping a small population captive at Doongerwadi Hill; indeed, the idea appeared to be a "pragmatic, long-term solution" to the Parsis' difficulties in the aftermath of the Vulture Crisis. She did emphasize that the vultures would require a very large aviary, which would have to include nesting platforms as well as all the usual raptorial amenities, and that the first batch of vultures used should be fledglings just about to leave the nest. This would allow the birds to acclimate more readily to life in captivity, and would give the Parsis and their conservationist allies at least five years to design a viable captive-breeding program before the birds reached sexual maturity. The idea was that after the initial captures, the population of vultures in the Doongerwadi aviary would be entirely self-sustaining, requiring no further influxes of wild-caught birds. After some deliberation, the panchayat agreed in principle to Mistree's and Parry-Jones's proposal in March 1999. The federal government of India as well as several state governments informed the Parsis that they would be allowed to take a small number of the now-critically endangered White-rumped Vultures from the wild, provided that the aviary was first satisfactorily constructed and that the project was amply provided with professional, scientific assistance.

Shortly afterwards, however, the aviary project began to run off the rails. One of Parry-Jones's concerns with the plan was that the vultures in the Doongerwadi Aviary were originally envisioned to be fed a diet of nothing but human corpses, an unusual situation that might well have unforeseen and potentially harmful effects upon the birds. She suggested that the vultures' diets could be supplemented with livestock, which some Parsis interpreted to mean that if the aviary project was completed, they would be confronted with the sight of non-Zoroastrian butchers invading the sacred towers with the carcasses of domestic animals, which would be dumped inside the *dokhmas* alongside the bodies of beloved friends and relatives. Others criticized the idea of using two *dokhmas* rather than one for the project, although Mistree had explained that each *dokhma* would have to periodically "rested" and cleaned, requiring that the vultures and pallbearers use the other in the meantime. Still others suggested that vultures taken into captivity would merely die in great numbers as had their wild counterparts; yet, while the true cause of Vulture Crisis wasn't known at the time of the aviary proposal, it was known that the mysterious agent of mortality didn't affect captive vultures. A few Parsis even went so far as to claim that it was impossible to breed vultures in captivity, despite decades of experience around the world demonstrating otherwise. All criticisms aside, since the disappearance of the vultures, at least 96% of the Parsis who had died in Mumbai had still been taken to the *dokhmas*<sup>[211]</sup>—though according to some this preference was due to convenience rather than deeply held religious scruples.<sup>[212]</sup> And, at public meetings, all indications were that the Parsi community at large supported the construction of the aviary.



As envisioned, the Doongerwadi Aviary would have been one of the largest aviaries in the world, a colossal construct that would surround the two most modern *dokhmas* upon Doongerwadi Hill with three to four-inch (7.6 to 10-cm) square wire netting draped over steel cables, themselves suspended from a number of 50-foot (15.3 m) high masts. At ground level, the aviary would have enclosed some 120,000 square feet (11,160 m<sup>2</sup>), or about two and three-quarters acres. Mistree estimated the price of designing and constructing the aviary at 30 million rupees, or about \$620,000, to which would have to be added the additional wages of vulture attendants (who would be specially trained Parsis), maintenance personnel, and so forth.<sup>[213]</sup> After further consideration and debate, the panchayat decided that it had little money to build such an aviary, considering that its foremost duty was still to subsidize the entire Mumbai Parsi community from the cradle to the grave.<sup>[214]</sup> Planning of the aviary project was finally abandoned in 2006 because the panchayat was dissuaded by its cost,<sup>[215]</sup> and also because after the culprit behind the Vulture Crisis was found out, Parry-Jones informed the Parsis that feeding vultures with human corpses would be far too dangerous for the birds, as the bodies would probably contain the residues of diclofenac and other NSAIDs from various medications that had been administered to ailing persons before their deaths.<sup>[216]</sup> To my knowledge, there are no confirmed cases of any vultures dying from secondary poisoning after feeding on a human corpse; however, there is a recent anecdotal report from Tibet that “about 100” Himalayan Griffons were found dead after feeding on a corpse at a sky burial site, so the threat may be real.<sup>[217]</sup> The panchayat has officially placed the idea of a *dokhma* aviary “on a back-burner.”<sup>[218]</sup> Though some Parsis hold out hope that the project could still be brought to fruition, if only the members of their community were persuaded to voluntarily give up the use of medications that contain NSAIDs, as of this writing it seems increasingly unlikely that the project or anything like it will ever be undertaken, much less completed. Many Parsis have suggested that a more realistic long-term solution would be to cremate bodies with modern, fire-free methods, while still conducting appropriate funerary rituals at the *dokhmas*.<sup>[219]</sup> Meanwhile, deceased Parsis are still taken to the Anjuman *dokhma* upon Doongerwadi Hill, which, though it was built to hold a maximum of 300 bodies, must now contain as many as 700 at once. After undergoing solar dehydration and the ministrations of the local kites and crows, the bodies are removed from the *dokhma* by pallbearers and discreetly buried - yes, *buried* - nearby.<sup>[220]</sup>

It’s clear, then, that the sudden loss of vultures affected the Parsis of India drastically, and in ways that no one could have either predicted or prepared for. As seemingly obvious a conclusion as that is, the idea that the absence of vultures could have substantive and adverse effects on either humans or other animals has been (and remains) unthinkable for the many people who deride vultures as “inessential” and “valueless” creatures. The thinking of these blinkered individuals goes that vultures neither serve as food for other animals, nor control the numbers of the animals that they feed on, since they don’t kill them; and therefore vultures serve no essential purpose in their ecosystems. Even in recent years, this remarkably ignorant attitude seems to prevail among many scientists in the biological sciences. If this is the case, and vultures really are just passive passengers along for the evolutionary ride, then the disappearance of vultures from a given ecosystem should have no substantial effects on that ecosystem, or upon the humans with whom they had shared it. With the advent of the Vulture Crisis, that hypothesis was inadvertently put to the test, on a massive scale.

I won’t hold you in suspense; the “vultures are inessential” hypothesis has been proven false. As soon as the Vulture Crisis began, there was a noticeable and dramatic jump in the numbers of the feral Pi-dogs, as well as movements of Dog packs into new areas where the vultures had previously been very abundant.<sup>[221]</sup> In India as in everywhere else, Dogs are enthusiastic scavengers; but in India

they were usually outcompeted for carcasses by the quicker, more efficient, and more numerous vultures. During the 1980s, both vulture and Dog populations had been more or less stable.<sup>[222]</sup> With the vultures gone, the Dogs had no substantial competition for the carrion resources of India; the efforts of smaller, part-time scavengers couldn't even begin to compensate for the absence of the carrion kings. Compared to vultures, Dogs are adapted for shorter lifespans, higher mortality, and more fecund breeding; thus it comes as no surprise that their populations exploded during and after the Vulture Crisis. It's been estimated that the number of Indian Dogs increased from fewer than 22 million to more than 29 million from 1992 to 2003, at the same time as the vulture population dropped from an estimated 10 million to under 100,000; and this increase occurred in spite of new laws enacting Dog sterilization programs. The Dog explosion was even more dramatic at local levels; at one traditional carcass dump in Rajasthan, western India, the numbers of Dogs seen scavenging at the dump increased from five dozen in 1992 to more than 1,200 in 2000,<sup>[223]</sup> an increase of over 2,000%. Considering that the daily food intake for a griffon-sized vulture is more than half of that of an average-sized Dog, meaning that about 55 new Dogs could be expected for every 100 griffons that died,<sup>[224]</sup> the leap in numbers made by the canines isn't surprising. What might be shocking, especially to inhabitants of first world nations, is the human mortality that can result from such a population explosion.

The carcass dumps now frequented by Dogs are often near cities or towns, meaning there is a great risk that these packs of feral Dogs will encounter, and possibly attack, people. This isn't a laughing matter in a country that was estimated in 2003 to have 16.7 million Dog bites per year, and that recorded more than 20,500 annual deaths from rabies (the vast majority of which were due to Dog bites). Even before the Vulture Crisis, India had by far the world's highest recorded incidence of rabies infections in humans,<sup>[225]</sup> especially in poor, rural areas; but after the Crisis, the situation became much grimmer. A recent study of the economic and social effects of the Vulture Crisis concluded, as a *conservative* estimate, that between 1992 and 2006 the loss of the vultures resulted in about 48,000 human deaths from rabies that otherwise would not have happened. Needless to say, the economic costs have also been severe; the total of additional health expenses due to the Vulture Crisis during the same period amounts to almost 1.5 trillion rupees, or \$34 billion; and again, this cost has been borne disproportionately by the poorest Indians.<sup>[226]</sup> Other effects of the vultures' sudden absence in India are less immediately dramatic, but may prove to be no less important in the years to come. A paper written in 2003 emphasized that a decline "of the scale and rapidity" of that seen during the Vulture Crisis was

unprecedented for a large bird of prey. . . . These declines do not simply represent the potential extinction of a species, or eventually, a genus, serious though extinction would be. Vultures are keystone species, and their disappearance is having and will have major impacts on both the ecosystems they inhabit and the humans associated with them.<sup>[227]</sup>

Aside from the costs of Dog bites and rabies treatments (and funerals), one might expect that the loss of the griffons would have little economic impact. Yet, as we saw [in Chapter 4](#), many of India's poorer citizens depended on vultures to help them in their trades. The bone collectors, who gathered skeletal remains and took them to bone mills for fertilizer, utilized vultures to pick clean the skeletons for them. Nowadays, the carcasses either lie rotting, or feral Dogs scavenge them, picking off only a few choice parts and leaving the rest. In some localities, people have now given up on recycling carcasses and simply burn them, removing the bone collectors' primary source of income.<sup>[228]</sup> Farmers also have much to fear with the vultures gone; increased numbers of feral Dogs certainly means increased

numbers of livestock killed or maimed by Dog attacks. Livestock is also likely to be increasingly vulnerable to diseases carried by Dogs, or by rats, which can be expected to similarly thrive without the competition of vultures.<sup>[229]</sup> And (though it's scarcely necessary to point this out by now) livestock carcasses that lay uneaten, or partially eaten by small scavengers, are practically guaranteed to serve as reservoirs of disease, whether they're left on land or are washed into waterways.<sup>[230]</sup>

Among the non-human denizens of the Indian subcontinent, the absence of the vultures will likely have even greater consequences. The abrupt jump in feral Dog numbers is certain to have adverse effects upon many small- to medium-sized animals, which will now face increased threats of predation from the Dogs.<sup>[231]</sup> Before the Vulture Crisis, the Pi-dogs were already well-known predators of wildlife, especially deer, which are more often maimed than killed outright by Dog attacks.<sup>[232]</sup> Like Dogs, rats are scavengers adapted to taking advantage of short-term situations, and they appear to be increasing in the absence of the vultures.<sup>[233]</sup> But the rats (or rather, their fleas) harbor a disease that is potentially an even greater threat than rabies: bubonic plague, which is endemic in India.<sup>[234]</sup> The lack of competition from vultures is guaranteed to be a boon to smaller avian scavengers like crows and magpies, which without competition will likely also become more numerous and therefore more of a threat to the smaller songbirds whose eggs and chicks fall prey to them. These smaller scavengers lack the vultures' virtual immunity to disease, and they may well help to spread diseases such as avian influenza.<sup>[235]</sup>

As we've already seen, it seems that during the first few years of the Crisis the griffons inadvertently protected the populations of other vultures lower in the scavenging hierarchy by preventing them from eating diclofenac-laced carcasses. It follows, then, that the loss of practically all of India's vultures will likely lead birds that are still lower in the scavengers' hierarchy, such as eagles or Greater Adjutant Storks (which are already endangered), to attempt to feed heavily on livestock carcasses that may yet contain hidden dangers. In Africa, the collapse of local vulture populations has led to increased contact between mammalian carnivores at carcasses, and there are strong indications that this contact drastically inflates the risk of disease transmission between the carnivores.<sup>[236]</sup> And without any vultures to alert them to the locations of carcasses, the large carnivores living in India's forests may well have to change their foraging habits, or start killing prey (including livestock) more often, in order to make up for the meat that the vultures once located for them. In his 2007 book *The Gir Lion*, the Indian biologist H. S. Singh noted that when Lions living in India's Gir Forest engaged in wander scavenging, they did so by watching and trailing vultures. But as the vultures are now a rare sight in the Gir, the Lions can no longer scavenge effectively.<sup>[237]</sup> It doesn't take a genius to guess that they'll have to kill more prey to make up for the shortfall in food. The tremors caused by countless vultures dropping dead in so short a time will continue to percolate for centuries, and no one can predict with any certainty when or how they will finally subside. It's said that for want of a nail, a kingdom can be lost. For want of ten million vultures . . . well, we'll have to wait and see.

There was a silver lining, of sorts, to the Indian Vulture Crisis. Though it would probably be a small consolation for the birds that suffered for so long before dying in their millions, the Crisis did ensure that, at last, their species would be the subjects of much professional attention and study. One might think that such abundant and conspicuous birds, inhabiting a region that was once ruled by European powers and that has been the focus of many biologists, would have been among the best-studied vultures in the world, but at the beginning of the Crisis, many elementary facts about them remained unknown; the Indian and Slender-billed Griffons weren't even recognized as different species. With the dawn of the 21st century, it was finally understood that the species long known as *Gyps indicus* actually comprised two distinct species, the Slender-billed Griffon *Gyps tenuirostris* and



the Indian Griffon *Gyps indicus*, which are not only very different in appearance but also have dissimilar behavior (the Slender-billed is much more social than the Indian) and habitat preferences. This knowledge will be of great help when devising recovery programs for the birds - though such programs face an uphill battle when trying to acquire breeding stock, as the few griffons that survive in the subcontinent aren't easy to find, and, since they now have a surfeit of carcasses to choose from, are extremely difficult to bait and capture.<sup>[238]</sup> Nor is there much prior husbandry experience for the personnel involved to draw upon, due to the previous disinterest of the world's zoos in breeding these vultures. The two White-rumped Vulture chicks hatched in 2008 were thought to be the first of their species ever produced in captivity.

The two Griffons of India and the White-rumped Vulture (right) are now considered to be critically endangered, meaning that they are in imminent danger of extinction as wild animals. Like the California Condor before them, there are now enough of their kind in captivity to ensure their continued short-term existence, regardless of what happens in the wild. Captive breeding projects are currently proceeding apace for all three endangered griffon species in Pakistan, in Nepal, in the United Arab Emirates, and in several parts of India, with the ultimate aim of restocking the wild vulture populations of the subcontinent once it's been verified that their food supply is diclofenac-free.<sup>[239]</sup> Unlike the situation that the California Condor faced after 1987, there are still viable wild populations of all three species, and of the critically endangered Pondicherry Vulture, concentrated outside of the areas where diclofenac had been widely used.<sup>[240]</sup> The future of these diehards is unclear; provided that the vultures can still find mates, they might be able to persist and breed indefinitely, but just a few far-flung diclofenac-laced carcasses could wipe out an entire griffon colony. A recent



statistical model of India's White-rumped Vulture population concluded that while India's ban on diclofenac had cut the Vultures' mortality rates by more than half, the population as a whole is still declining by 18% per year – far too quickly for the Vultures to make up the losses.<sup>[241]</sup> Given that the pharmaceutical threat still persists in parts of the subcontinent, some biologists have already predicted the complete extinction of these species in the wild by 2020.

On the other hand, since diclofenac vanishes from the ecosystem so quickly, a genuinely enforced ban on the drug can have immediate positive effects on the vultures. There are already plans in progress to create safe zones around some of the remaining griffon populations in India by providing them with food from *panderapols*, Cattle sanctuaries, and ensuring that potentially dangerous drugs are not used on any domestic animals within the zones.<sup>[242]</sup> The first introductions of captive-bred vultures into these zones are scheduled for 2014 and 2015.<sup>[243]</sup> If diclofenac is removed

from the equation, such measures could certainly help the vultures to recolonize most of their old haunts, given enough time and the cooperation of local people; but the chances of the Indian vultures ever recovering anything like their former numbers are slim indeed. Not because it took them thousands of years to do it in the first place, nor even because whatever learned behaviors the civil vultures had taught to their offspring to allow them to survive alongside humanity have now been lost; but because the Indian subcontinent, like the rest of the planet, is changing in a very fundamental way.

Looking back over history, it's clear that the end of the Pleistocene 10,000 years ago was a momentous time, an age when extinction stalked the earth, when entire ecosystems and the species that comprised them were cast down and shattered, and an age of sweeping changes in the world after which things would never again be the same. If there are any historians in another 10,000 years, they will assuredly look at our age in much the same light, perhaps considering our modern era to represent the end of one biological epoch, the Holocene, and the beginning of another: the Anthropocene, the age of man. The close of the Pleistocene saw the end of most land animals larger than humans, as well as of any other species that depended on those megafauna for existence; the current Holocene trend seems to be that any living thing that can't adapt to a human-dominated world must perish, or be marginalized into a human-fostered existence.

Should there be any paleontologists in another 10,000 years, it will be common knowledge among them that evolution proceeded at an incredible pace during the Holocene, because the tempo was drastically quickened by human actions. *Homo sapiens* exterminated thousands of species, domesticated a few, and forced virtually all of the rest to adapt to their brave new world at a phenomenal speed. As human culture develops, the living things that share space with it must also develop, or become part of the past. Some species have pulled off this feat spectacularly; everyone has heard stories of "super-rats" that have developed an immunity to once-lethal rat poisons within the space of a few generations, and of new strains of cockroaches that are unaffected by most pesticides. Several raptor species in Europe have experienced marked evolutionary changes just in the past century, including a diminution of size, a greater resemblance of adult birds to young birds, and adaptations to take smaller prey than that which fed their ancestors.<sup>[244]</sup> With most of Europe's wild mid-sized mammals and large birds extinct or declining from human actions, rodents and pigeons represent the largest prey that is now widely available. Carrion, of a sort, *is* still in good supply, but this isn't the carrion that Europe's Griffons, Lammergeiers, and Monk Vultures are adapted to feed on. It consists largely of things like household garbage and roadkilled small animals, which are as different from the large domestic and wild mammals that provided the vultures' historical sustenance as that food supply was from the ice age megafauna that sustained Europe's vultures when humans first arrived.

There's a certain delicious irony in the fact that, despite being held in an extremely low regard by many people, scavenging has become an increasingly popular way for animals to make a living *solely because of human actions*. Often without the choice of attacking live prey even if any is available, the vast majority of domesticated carnivorous animals now live as full-time scavengers, and many of the wild carnivores or omnivores that have thrived in the modern world now depend largely on scavenging to survive. For good or ill, scavenging is clearly the wave of the future for meat-eaters on this planet; one might say that vultures, which adopted the lifestyle tens of millions of years ago, are ahead of the times. They already know how to look for carrion, and how best to dispose of it when they find it; and they also have the great advantage that unlike animals that scavenge only as a sideline, they can raise their young on carrion provided that suitable mineral supplements are

available. An inability to raise young on a scavenger's diet seems to be a chronic problem for some other carnivores, such as feral Dogs living in urban areas in the US. These Dogs eat almost nothing but garbage,<sup>[245]</sup> and the survival rate of their pups is effectively nil; the populations remain viable only because they are continually replenished by humans abandoning new Dogs into the feral state.<sup>[246]</sup> But even with a head start on a geologic timescale, vultures can't rest on their laurels; staying alive in a changing world means changing with it. Because they are uniformly long-lived, slowly-reproducing creatures, vultures wouldn't be expected to evolve by the leaps and bounds of animals like rodents and insects, which have much briefer spans of time from one generation to the next, and they haven't. With the possible exceptions of the Hooded Vulture in northern Africa and the Egyptian Vulture in India, no vulture species has yet evolved into different varieties just for the sake of adapting to humanity. But some vultures have successfully adapted in less concrete ways, either by changing their behavior to better suit this new world, or by readily adapting ingrained habits to suit the human-dominated environment. The latter approach is undoubtedly easier on the birds - after all, it's easier to reshape a round peg to fit in a square hole than to make a brand-new square peg - and it comes as no surprise that the greatest vulturine success stories of the modern era all involve "weed species."

The Black, Turkey, Egyptian, and Hooded Vultures are all weed species, as are most other animals that have had notable success in expanding their numbers and ranges lately, including Brown Rats, Common Starlings, feral Dogs and Cats, house flies, and the ever-present cockroaches. In primal situations where humans are absent, these animals live under the shadow of larger, more specialized creatures that act as competitors, predators, or both, and so act as a brake on their numbers. Human disruption of the natural order frequently removes these predators and competitors, leaving their niches free for the taking by the weeds. These opportunistic creatures all have a number of things in common, but the most critical attribute for any weed species is that it must be a generalist, not a specialist, in its behavior. The ideal weed species could eat anything, live anywhere, sleep or forage at any time of the day or night, and breed whenever it felt like it (and if you want to know what it looks like, find yourself a mirror). Most weed species are relatively small, and so can sustain great numbers with limited resources. Diminution also has the great advantage of making them less conspicuous and threatening to humans. The weeds must be bold enough to overcome the instinctive fear of humans that most animals harbor, but not so tame that they leave themselves vulnerable to frequent attack from humans; and they must be able to tolerate a tremendous level of disturbance from the noise and movement of man and machinery. Weed species must be able to reproduce quickly (at least in relative terms), in order to quickly take advantage of new disruption, and to make good the mortality that inevitably results from constant contact with humans. Most weed species are fairly intelligent - Brown Rats, Starlings, and feral Cats are all among the brainier members of their respective families - and almost all are social to some extent.

In the New World, the Turkey and Black Vultures fit this description almost perfectly, and have already been thriving in the face of humanity for millennia. Both are small by vulture standards, but still large enough to dominate the crows and gulls that are their most frequent competitors in disrupted areas. Both species are generalist feeders, are able to eat small- to mid-sized carcasses (and even large ones, if the hide has already been breached) as well as garbage and offal, are willing to pirate food from other animals, and can even kill living prey, the last a specialty of the Black Vulture. Both species can raise two young per year; scarcely a rabbit-like level of fecundity, but twice the reproduction rate of most vultures, and four times that of the giant condors. Both are thought to be quite intelligent, and both are social. The Turkey Vulture has additional advantages in its powerful



sense of smell, which allows it to locate food which remains undiscovered to other birds, and in its light wing-loading that gives it the ability to soar easily in the weakest winds and updrafts. However, the Black Vulture is generally more aggressive, less timid around humans, and, with its family-based social structure, is far more gregarious than the Turkey Vulture. The net result of these differences is that the Black Vulture is more numerous, especially in and around cities, but the Turkey Vulture is more widespread and occupies a greater variety of habitats. At present, each of these species is probably more numerous than all of the other vultures in the world put together.

The Old World has its own weed vultures, the Egyptian and Hooded Vultures. Many of the factors that have aided the New World weed birds apply to these two as well; both are small and generalized in their preferences of habitat and food. The Egyptian Vulture typically lays two eggs in a clutch; along with the Lammergeier, it is the only Old World vulture that lays more than one. But, unlike the Lammergeier, the Egyptian often raises two young, and so it effectively has twice the reproductive potential of other Old World vultures. Despite its small size, the Hooded Vulture lays only one egg at a time, and so it would seem less able to take quick advantage of human disruption or to recover mortality; but this doesn't seem to have constrained it in any way, perhaps because persecution of vultures is relatively rare over most of its range—or at least it used to be. Unlike their New World counterparts, the Egyptian and Hooded are currently considered to be endangered. Although they're still very numerous by vulture standards (their global populations are thought to total around 40,000 and almost 200,000 individuals, respectively), both have declined precipitously in recent years; not so much from lack of food as from persecution and accidental deaths, especially by poisoning. The population of Egyptians in the Indian subcontinent was decimated by the Vulture Crisis, as we saw earlier; and the Hooded, formerly secure in its niche as Africa's top civil scavenger, is increasingly being slaughtered along with other vultures to fuel the trade in animal parts for witchcraft.<sup>[247]</sup> It's looking increasingly likely that the 21<sup>st</sup> century will be the last in which the townspeople of the Old World can still expect to have their messes cleaned up by vultures.

The Black Vulture in Mesoamerica, the Hooded Vulture in West Africa, and the Egyptian Vulture in the Near East and southern Asia have had a head start in developing the civil lifestyle to its fullest extent, as cities have existed in those areas for thousands of years. Although many civil vulture activities have some sort of primal equivalent - dodging around humans and Dogs is not much different from dodging around large carnivores and bigger vultures - and thus are comparatively little changed, the urban environment itself requires more radical adaptations. Generally, vultures of the plains are more adaptable to cities than are vultures of forests and mountains; no doubt because humans are also plains species, and their artificial environments tend to incorporate the physical features of the plains. That quirk leaves the vultures of forests and mountains out in the cold where civil lifestyles are concerned, although mountain vultures do have the not-insignificant advantage that mountains, unlike trees, usually cannot be removed to make way for development. This immutability of habitat has made mountainous terrain a last refuge for large vultures in some parts of the world, especially in Europe. Clearance of forests to make way for development makes no difference to the success of Hooded and Turkey Vultures - they can live with humans either way - but it most definitely helps Black and Egyptian Vultures, often at the expense of more specialized forest vultures.

The development and evolution of vultures, like that of all other living things, is largely dictated by the world they inhabit. During the Pleistocene, big was beautiful, and the most successful vultures were the large birds that were able to feed on the bodies of megafauna, and to compete with other scavengers for that resource. The Pleistocene fossil record indicates that smaller vultures were

generally less common and more often restricted to less productive habitats than their bigger brethren; and the comparative rarity of the small Egyptian and Hooded Vultures in the megafaunal ecosystem of today's African savanna certainly bears this out. At the megafauna carcasses that represented the most substantial food resource of the Pleistocene, smaller vultures were marginalized; easily pushed aside by large vultures, they had to take whatever feeding opportunities they could find by sneaking around and lunging for scraps, or by daring the fury of the mammalian carnivores that the big vultures were too cumbersome to approach. This goes some way towards explaining the peculiar fact that there are far more species of large vultures than small vultures, and that until humans began to drastically disrupt the world's ecosystems the large vultures were probably also more numerous in terms of individuals. The reason for this curious discrepancy probably lies in the differing habits of large and small vultures. The large vultures, originally more numerous, are the *only* birds that can be said to specialize in eating large carcasses. Though other birds, such as Marabou and Adjutant Storks and smaller vultures, may feed from these carcasses as well, they are dependent on the large vultures to open the carcasses and (in the case of the storks) to effect the mechanically difficult process of separating meat from bone. Because they can do what no other birds can, the large vultures have no real competition in their niche.

Small vultures, on the other hand, are more generalized in diet, eating smaller carcasses, live prey, miscellaneous scraps, and more recently human refuse. They have a great deal of competition in this niche; although there may only be two species of small vulture in the Old World (excluding the Palmnut, which doesn't behave like a vulture) and four in the New World, the similarity of their habits to those of these other scavenging birds means that they are effectively competing with many other "small vultures." There was thus only a limited amount of room in the world for genuine small vultures; until the humanized era, when this niche suddenly became one of the most foolproof and potentially bountiful positions that any animal could occupy. Today, the situation of the Pleistocene has been reversed; it is increasingly the large vultures that are marginalized, that are less common, less widespread, and restricted to unproductive habitats. In the human-dominated world, big animals may still be considered aesthetically beautiful; but in evolutionary terms, they are a declining breed. For most animals, great size just doesn't work anymore; being big requires too much food, requires too long a period to grow to adulthood and breeding age, and, perhaps most importantly, makes one too conspicuous to humans. Along with certain other winged scavengers, like Black Kites, gulls, and some members of the crow family, the small vultures have proved to be the right model at the right time. Their ice age-honed skills of skulking around large carnivores and profiting from opportunities that bigger scavengers didn't have to bother with have served them well. The triumph of smaller vultures over larger doesn't represent a case of "brain over brawn," as small vultures are not necessarily more intelligent than their bigger counterparts. Rather, it's a matter of generalization over specialization, and a great victory of opportunism. The latter may be a dirty word to many people, but it is now the only way to go for many animals.

There's one further point to make regarding the ability of vultures to adapt to humanity; that of culture, not of humans but of the birds. The study of culture, perhaps more accurately termed "behavioral traditions," in non-human animals is still in its infancy, and there certainly isn't much to draw on regarding the issue of behavioral transmission in vultures. Nevertheless, as intelligent, long-lived, and often highly social animals, vultures are prime candidates in which to find behaviors that are neither entirely instinctive, nor learned in a vacuum, but that are learned from other vultures. The most evident cultural development among the birds is the Ostrich egg-breaking behavior of the Egyptian Vulture, which although based on instinctive egg-throwing is still a partially learned

behavior that occurs only in some populations of the species. We saw in the preceding chapters that the populations of some widespread vulture species engage in unusual behavior that has never been reported elsewhere in their ranges. The sheer variety of behavior reported in wild Lammergeiers - in one place frequent predation upon large and small mammals, in another midair attacks on other birds, and in still others no recorded predation of any kind - can be better explained by accepting that different Lammergeier populations have developed differing behavioral traditions than by assuming that most of the people who reported these behaviors were liars or fools. There is other behavior - some of it rigorously recorded, most merely suspected from anecdotes - that suggests transmission from one generation to another does play an important role in shaping vulturine habits.

One notable example of this is found in the difficulties that the reintroduced California Condors have had with Golden Eagles. Condors often come into contact with Eagles in flight, and in competition over carcasses, sometimes with bloody results. In Southern California, Eagles have been one of the most serious threats to reintroduced Condors, at times even rivaling lead poisoning as an agent of mortality.<sup>[248]</sup> This unfortunate state of affairs seems to be an artifact of the inexperience of the reintroduced Condors when compared to their wholly wild ancestors; for although Golden Eagles were generally dominant over Condors at carcasses, and sometimes launched apparently predatory attacks on Condor nestlings, as far as I know there is no pre-1992 record of a wild Golden Eagle actually killing a wild California Condor. Indeed, the earlier Condors had developed decisive methods of dealing with overly aggressive Eagles, as described by William Dawson in *Birds of California*:

[A] jealous Eagle, a "Golden" it was, became increasingly offensive to a peaceable group of Condors, until at last he struck one of them. . . . The three Condors retired down the ridge for consultation. The Eagle, meanwhile, puffed with pride, and believing himself victorious, seated himself in the topmost bough of a pine tree. . . . presently a black thunderbolt struck him unawares and sent him crashing heels over crown down into the lower branches. . . . Screaming with rage, he started to mount, intent on taking vengeance upon his pursuers. The Condors, however, had thought that all out, and while the Eagle was dodging one thunderbolt the other two were qualifying for position. It was too much, and the reputed "king of birds" fled the country.<sup>[249]</sup>

It's a shame that the modern captive-bred Condors haven't been able to learn such behavior; not only might it save their lives, but it would save the people working on the Condor recovery projects a great deal of frustration while simultaneously giving the Eagles good cause to leave all Condors alone. Among the reintroduced Condors, older and more experienced birds are certainly better able to deal with Golden Eagles than are young, recently released birds; but it remains to be seen if the veterans will pass their experiences on to their offspring.

The stark differences in behavior within some vulture populations that live near human settlements may also stem from differing traditions. The small Lammergeier population in the Pyrenees of Spain seems to be divided into two groups of birds: those which haunt the high, remote peaks of the range, and feed only on wild animals; and those which prefer the lower mountains closer to human habitations, and feed largely on dead livestock.<sup>[250]</sup> These Lammergeiers may have developed two different traditions: one primal, and one partly civil. If so, the parent birds of each tradition must teach their young to forage in the manner appropriate to their tradition, so that their ancestral habits can be perpetuated. On the other hand, the choice of whether or not to adopt civil habits (assuming that primal habits are instinctive) may be just a matter of preference on the part of individual birds. Unless the birds are marked and individually tracked, no one will know for certain. The dramatic differences of civil and primal behavior found within a single species - and even within a



small, localized population of a single species - testify to the power of human attitudes to force new ways of life upon other animals. As always, conditions dictate behavior, and for now humans dictate the conditions.

Not that everyone is happy with that arrangement. Our feelings about the way the human-vulture relationship is going (when we think about it at all) are decidedly mixed. Many people feel that there is ample reason to lament the general shift from primal to civil lifestyles among vultures; as one citizen of Charleston put it when discussing the "buzzards" of that city, "their respectability ends where their utility begins."<sup>[251]</sup> The sheer frustration and anger in some quarters over the idea that the California Condor might one day depend on humans for its continued survival - that it might effectively become a civil vulture - proved to be one of the major bones of contention in the debate over its fate. Crown Prince Rudolf espoused a highly polarized view of primal and civil Egyptian Vultures, which as he said were "unusually variable and entirely dependent on the locality occupied by each individual."<sup>[252]</sup> Rudolf found that when this Vulture was living "outside the gates of the towns it descends to the level of a very low domestic creature, and lives upon carrion and filth, while on the mountain-tops, near the perpetual snow, it strikes the observer as being a noble bird of prey."<sup>[253]</sup> Writing in his book *Birds of Prey of Africa*, the ornithologist Leslie Brown preferred to imagine Lammergeiers as "superb eagle-like birds inhabiting the wildest mountain terrain" - however, he then pointed out that "where they are common, as in Ethiopia and Tibet, this impression is soon dispelled. . . the Lammergeier then turns out to be a scavenger associated with man, following the plough in Tibet to pick up the grubs in manure, and in Ethiopia frequenting the town garbage heaps for scraps. It is sad, but it is true."<sup>[254]</sup> The dichotomy of civil and primal habits among the vultures, and among most wild animals, is now the only distinction worth making to most people; other questions of appearance or behavior that once determined thoughts, attitudes, and prejudices about the beasts are no longer nearly as important. It may yet also become the supreme distinction to the vultures themselves, as a determinant of who will survive and who won't. Although the benefits of adapting to humanity are great for any wild animal, such adaptation is in the end dependent on human attitudes; as the Vulture Crisis has demonstrated, minor changes in the latter can spell the end of a seemingly secure symbiotic lifestyle. In the most intensively developed parts of the world, even small vultures have often disappeared, leaving whatever scavenging roles remain to be taken over by still more diminutive animals. In an ideal world, would-be civil vultures would at least be applauded for making the effort to become so; but in this world, modern contempt for vultures as a whole is due in no small part to a more specific contempt for civil vultures, however useful or interesting they may be. H. B. Tristram was at least partially correct when he stated that the misidentification of the Old Testament's vultures as "eagles" was due to confusion between the primal griffons of which the Bible spoke and the civil Egyptian Vultures which, with their confiding and garbage-eating habits, defined the very concept of *vulture* for most Europeans.<sup>[255]</sup>

In belated recognition of this problem, there have been recent attempts to draw a distinction between creatures that indiscriminately consume organic material of all kinds - which are then called *scavengers* - and those creatures that specialize in the consumption of (usually large) animal carcasses - dubbed *carrion-eaters*. I elected not to make that distinction in this book (because, frankly, it's complicated enough as it is), but I agree that it is a distinction worth making. Not only would it bring modern journalism into line with the prevailing thinking throughout history, which held that carrion-eaters were different in every respect from generalist scavengers, but it would also help modern people to understand that there is a world of difference between a large vulture, part and parcel of a primal or pastoral landscape, and a small vulture, which can subsist quite well in a humanized world

as long as it isn't persecuted. Along these lines, the names of the two largest New World vultures, the *condors*, could well represent subconscious attempts to separate those large carrion-eaters from small scavengers like the Black Vulture and Turkey Vulture. George Byam certainly thought so; he considered the Andean Condor to be "without doubt" the finest bird in Chile, and as such he "often wondered why the Chilians do not call the huge bird by his nobler name [of condor] instead of calling him 'buytre,' or merely vulture, thus classing him with all the other disgusting varieties of that filthy feathered biped."<sup>[256]</sup> Come to think of it, perhaps the very word *vulture* has finally outlived its usefulness, after so many centuries of being applied indiscriminately to birds large and small, Old World and New, garbage-eating and megafauna-devouring. Yet the birds that carry that troublesome title remain stubbornly adaptive, and may yet resist even this pragmatic categorization of primal and civil; there is increasing evidence that many large vultures are becoming civil, too. Even such a large and notoriously misanthropic bird as the Monk Vulture has been seen picking its way through garbage dumps in South Asia; although the bird may dislike the physical proximity of humans, especially at its nest, it clearly isn't averse to human waste as a food supply. And there is room for optimism here, as vultures clearly have no specific objections to feeding on what we leave behind, be it discarded livestock, garbage, roadkill, or the bodies of our political foes. There is also room for objection, in principle if not in practice.

One of the more curious observations of large vultures exhibiting civil behavior was reported at the turn of the millennium from Gibraltar, the titanic rock jutting south from Spain that delineates the boundary between the Atlantic and the Mediterranean. The observation was of several vultures, probably on a stopover from their migration, seen ripping open plastic garbage bags at a dump in their search for food.<sup>[257]</sup> This action isn't in itself unusual; no doubt many thousands of vultures around the world are tearing open garbage bags at dumps to feed themselves at any time. What *was* strange was the species of vulture involved; not a small generalist that had thrived from human activities for many years, but the Eurasian Griffon ([right](#)). One of the largest birds of prey in the world, a bird that had once rubbed shoulders with the mighty Maltese Vulture, and that had feasted on the earthly remains of some of the largest creatures ever to walk the earth; and a vulture that even to this day seems to prefer the biggest carcasses available, as if disdaining to feed on anything smaller than itself. A vulture that been a companion of our ancestors for scores of thousands of years, and that had seen the great and terrible



changes that they wrought upon the dying world of the ice ages. More than that, the great *nesher* of the Bible, an inspiration for more than one god and more than one would-be aviator, the mother of the universe and the protector of kings; and the cherished undertaker of so many practitioners of exposure who had faithfully consigned their deceased loved ones to its gaping maw, so that they might fly to other lives, other worlds, upon its tremendous wings. For humanity to have forced a vulture like this to perch upon one of the Pillars of Hercules, named for the hero to whom it had once been held righteous and sacred, and there rip into a garbage bag and scrounge among trash to feed itself and its offspring . . . well, we might as well have reduced our own cultural heroes to dumpster-diving for food in the back alley of some nameless skid row.

But the Griffons were only doing what they must, like Coyotes stalking alley rats, frogs appropriating goldfish ponds, or Ravens trailing deer hunters. As humans have made the world an easier, more hospitable place for themselves, they have at the same time made it a much tougher and more hostile place for the vast majority of other living things. We rarely harbor grudges against our fellow humans for doing whatever is necessary to survive in a perilous situation, short of cold-blooded murder; it seems unfair to treat animals any differently. If the vast majority of the world's vultures must now subsist on our leavings, only *after* countless false accusations of doing just that, who are we to begrudge them?

The relationship that brought us to this point was a rare and cherished thing: A truly mutualistic association that, at times, brought great benefit to both parties. Vultures are unique among the animals at the top of the food chain in many ways, but especially in that they often derive concrete benefits from human activities and they present little, if any, threat to human life. In the larger sense, this book has only offered a cursory look at the human-vulture relationship; but it undeniably has demonstrated that the carrion birds have helped the human race much more than they have hindered it. And, with all of the ups and downs that the birds have sustained at humanity's sometimes-benevolent, sometimes-malevolent, often-just-oblivious hands, vultures remain prominent and important figures in our minds – perhaps more so than in reality, where they're increasingly scarce, sparse, and distant. Yet, as I write this, the prevailing belief seems to be that this relationship is over on any meaningful level; an archaic association reduced to a static curiosity, in which a few vultures are preserved under some hazy idea of "biological heritage," or as relics of a bygone time when the natural world functioned according to its own processes, rather than upon those imposed upon it by humanity. So it seems that, once again, the idea of vultures as obsolescent, ancient relics has reared its ugly and empty head. But *this* time, we can strike it down for good, because we have a secret weapon that has yet to be unsheathed. Out of all of the many similarities between humans and vultures - from eating habits to recent evolutionary history to a longing for companionship - we have yet to discover the most intriguing.

As we've seen, humans have been steadily turning both domestic and wild carnivorous animals that were once scavenger-predators into pure scavengers. It's long been fashionable to lionize the aloofness and self-sufficiency of wild animals, and to disparage the almost-desperate dependence of domestic animals upon their caretakers; but domestic animals behave like dependent juveniles only because domesticity has led them to believe that they *are* dependent juveniles, whose most basic needs are all fulfilled by humans. When affectionate pet owners refer to their charges as "children" or "babies," they are speaking the plain truth, at least in a psychological sense. Humans are, in effect, the parents of domestic animals, the providers, protectors, and nurturers. Among wild carnivores, scavenging is a strategy often adopted by the young; whether they're still under parental care, as when their parents bring them already-killed prey to eat, or after they've left parental care, when severe



territorial competition and lack of experience in predation forces them into the more difficult and unpredictable business of wander scavenging. In the pursuit of far-flung dead carcasses, sociability serves all concerned very well; survival in scavenging demands cooperation over competition, and so scavengers form temporary societies of the young while the situation lasts. Except in the vultures, it usually doesn't last long. Most scavenger-predators abandon the risky and demanding wander scavenging lifestyle as soon as they can for something else; anything else. But with the onset of humans, there often is no other option; the carnivores must remain scavengers, and they concurrently grow young, both physically and psychologically. In this, as in all other aspects of scavenging, the vultures are far ahead of the curve.

One of the most common ways that evolution leads animal species to adapt to new situations is through *neoteny* (or *paedomorphosis*, for the ultra-geeky), the retention of infantile or juvenile traits into adulthood. In practice, neoteny means that generalized traits with a more ancient provenance in the species' evolutionary past are favored over more specialized and newer traits that only adults would acquire. Both humans and vultures ([right](#)) are markedly neotenous in their physical traits; with their greatly reduced body hair, enlarged craniums, and stunted nails and teeth, humans look very much like the fetuses of other ape species. Old World vultures also have reduced nails, or talons, almost all of them have downy-feathered or bald heads and necks, and some tropical species have also lost feathering elsewhere on their bodies. Among the other birds of prey, reduced



talons, bald or downy heads, and partially naked bodies are seen only in chicks. The same can also be said for the New World vultures. When compared to their stork progenitors, these birds have severely attenuated bills and legs; not much like adult storks, but very much like stork chicks. An adult vulture looks similar in many ways to an overgrown raptor or stork chick; and, in a sense, that's exactly what it is, just as a human is essentially an overgrown, exceptionally brainy baby ape. But the greatest advantages of neoteny for humans and vultures alike lie not in their physiology and their outward appearance, but in their mental processes and behavior.

Both vultures and humans are markedly social, open to new possibilities, and inquisitive about their surroundings. Vultures are attracted not only to other vultures, but also to other scavengers, predators, and animals in general. Their evolutionary history had led them to search for widely scattered sources of food in a largely deserted world; they need all the help that they can get in this endeavor, and so they crave company, even if that company is unfriendly or potentially dangerous. Much the same could be said of humans, we of the eternal biophilia, who never seem to be able to get enough of our fellow living things. These traits are all characteristic of young animals, which are generally more flexible in behavior, bolder, less cautious, and more open to novelties and unusual

possibilities than are adults. The extended periods of immaturity that young humans and young vultures alike must endure before reaching adulthood allow for a tremendous amount of learning and accumulated experience, which is vital for surviving the unpredictable, challenging lives that they will lead. Like humans, vultures are cared for by their parents even after they are capable of moving about on their own and are able to feed themselves; they learn how to survive in a complicated world under the tutelage of their elders.

It must be the oddest irony of all that humans are always quick to trumpet their neotenuous features as marks of advancement above and beyond the other apes, while equivalent features seen in vultures have almost unanimously been regarded as signs of degeneracy. When discussing the physical traits of vultures, commentators tend to focus far more upon what they've lost, rather than what they've gained. Perhaps this mistaken focus stems from the vulturine association with decay, disorder, and entropy in general; a line of thinking which leads to the conclusion that the vultures themselves are the result of entropic evolution, the nadir of a downgrade from a sleek, attractive predator to a rumpled, hideous scavenger. Vulturine neoteny looks like signs of old age to human eyes, and has frequently been interpreted as such; yet vultures are both blessed and cursed, as we are, with all the capriciousness of youth. To a young mind, even a world rapidly growing smaller, emptier,

and more lifeless is still a wide-open place alive with possibilities - not least the possibility, and hope, of survival.

While all of the ever-young scavengers still have much to learn in this world, the vultures, the eldest of the young, likely have one very specific lesson left to teach us. It's mentioned in a comic yet poignant story, long told by the African-American people of the southern United States, which involves their favorite trickster hero, Brer Rabbit, and their favorite vulture, Brer Buzzard. One day, the tale begins, Brer Rabbit is offered the chance of a lifetime by Brer Buzzard: the opportunity to learn how to fly. Of course, Brer Rabbit eagerly accepted this offer - who wouldn't? He climbed onto Brer Buzzard's back, and held on tightly as the great bird left the ground and circled higher and higher into the limitless blue. At last, having reached a suitable altitude for the lesson to begin, Brer Buzzard told Brer Rabbit to let go; and he shook his passenger off with a shudder of his wings.



Alas, enthusiasm isn't always a suitable substitute for experience - or for wings. Finding himself flailing uselessly in midair, Brer Rabbit fell like a stone from heaven, and finally hit the ground with a tremendous whack. The other animals who had watched his foolhardy stunt play out burst into laughter; and, seeing that he had somehow survived his precipitous fall, they began to taunt him. A *rabbit* thinking that he could *fly*?! Who had ever heard of such foolishness?

Completely unperturbed, Brer Rabbit stood up, brushed himself off, and faced his accusers. The laughter died down, and presently he spoke, saying, "Of course I can fly. Didn't you all see me? The trouble was, Brer Buzzard forgot to tell me how to land."<sup>[258]</sup>



# Illustration Notes

The skull on the left is of the extinct saber-toothed cat *Smilodon fatalis*, that on the right is of the living Spotted Hyena *Crocuta crocuta*. [Go back](#)

Maltese Vulture skull redrawn from [Louchart](#), pl. 2. [Go back](#)

Painting from Vulture Shrine (VII.8). Redrawn from [Mellaart 1967, pl. 45](#). [Go back](#)

Painting from Shrine VIII.8. Redrawn from [Mellaart 1967, pl. 46](#). [Go back](#)

Painting from north wall of the Vulture Shrine (VII.8). Redrawn from [Mellaart 1967, pl. 49](#). [Go back](#)

Bas-relief of a woman wearing a vulture crown in the tomb of Pharaoh Seti I (d. 1279 BCE). Redrawn from [Calverly and Broome, Plate 40](#). [Go back](#)

Artist unknown (possibly Abd-al Aziz), *Zal Is Sighted by a Caravan*. From an illuminated copy of the Shahnameh, c. 1560. [Go back](#)

Achaemenid Persian vulture head, sculpted in glass paste. Redrawn from [Pope, pl. 30](#). [Go back](#)

Two examples of ancient Jewish ossuaries, c. 4,500-3,500 BCE. [Redrawn from Cameron, 33](#). [Go back](#)

Reconstruction of Rogem Hiri. Redrawn from Christina Etzrodt's diagram in [Arav, 44](#). [Go back](#)

Mansur, *Pondicherry Vulture and Indian Griffon*. c. 1615-20. [Go back](#)

Vulture-shaped bronze ornament from northeastern China, c. 7<sup>th</sup>-8<sup>th</sup> century BCE. Redrawn from [Bunker, Wyatt, and Zhixin, Figure 133](#). [Go back](#)

Saddle plaque in the form of a Monk Vulture from central Altai Mountains, c. 6<sup>th</sup> century BCE. Redrawn from [British Museum, fig. 64](#). [Go back](#)

A typical Zoroastrian *dokhma*. Redrawn from [Hartz](#). [Go back](#)

Louis Agassiz Fuertes, *Eared Vulture (Lappet-faced Vulture)*. 1926. [Go back](#)

Louis Agassiz Fuertes, *Common African Vulture (Hooded Vulture)*. 1926. [Go back](#)

Louis Agassiz Fuertes, *Gypaetus barbatus meridionalis (African Lammergeier)*. 1926. [Go back](#)

Louis Agassiz Fuertes, *Egyptian Vulture*. 1927. [Go back](#)

Louis Agassiz Fuertes, *Trigonoceps occipitalis (White-headed Vulture)*. 1926. [Go back](#)

Talamancan pendant of Sibuyan, date unknown. Redrawn from [Stone 1977, Figure 292](#). [Go back](#)

Andean weaving of Andean Condor (reconstructed), c. 2500 BCE. Redrawn from [Sawyer and Sonday, 10. Go back](#)

Moche gold, silver, and copper ear ornament depicting King Vulture. Redrawn from [Pillsbury, fig. 7. Go back](#)

Pashash relief carving depicting head eaten by three vultures. Redrawn from [Greider, fig. 147. Go back](#)

Moche picture of vulture execution. Redrawn from [Donnan and McClelland, fig. 7. Go back](#)

Moche pottery depicting vulture execution. Redrawn from [Bourget, fig. 2.69. Go back](#)

Moche picture of vulture execution. Redrawn from [Donnan and McClelland, fig. 10. Go back](#)

Maya ballplayers from painted pottery, c. 700-850 CE. Redrawn from [Miller, Martin, and Berrin, Plate 45. Go back](#)

Russian art showing Moose with vulture. Redrawn from [Rybakov, fig. 19. Go back](#)

Gustave Moreau, *Prometheus*. 1868. [Go back](#)

Joseph Wolf, *Bearded Vulture and Ibex*. Undated. [Go back](#)

Joseph Wolf, *Maternal Courage*. 1874. [Go back](#)

J. B. Oudry, *Vulture*. c. 1740. [Go back](#)

Antoine-Louis Barye, *Vultures on a Tree*. c. 1835. [Go back](#)

Charles J. Hamilton, *Charleston Square*. 1872. [Go back](#)

Louis Agassiz Fuertes, *South American Turkey Vulture*. 1911. [Go back](#)

John James Audubon, *Turkey Buzzard (Cathartes Aura). 1 Male, 2 Young*. 1832. [Go back](#)

John James Audubon, *Californian Vulture, Cathartes Californianus, Old Male*. 1838. [Go back](#)

Nicolas Huet, *Andean Condor*. 1826. [Go back](#)

John James Audubon, *Black Vulture or Carrion Crow, Cathartes Atratus, 1 Male, 2 Female. American Deer, Cervus Virginianus*. 1831. [Go back](#)

Louis Agassiz Fuertes, *California Condor*. Undated. [Go back](#)

Samuel Chamberlain, *Fate of A Straggler*. c. 1846. [Go back](#)

Vultures with advancing Assyrian troops, detail from Ashurnasirpal's palace (northwest portion). Drawing from original relief by Henry Austen Layard, 1849. [Go back](#)

Etruscan vase depicting victory over barbarians, 4<sup>th</sup> century BCE. Redrawn from [Beazley, pl. 24.2. Go back](#)

Russian plates depicting Moose with vulture-like birds, 7<sup>th</sup>-6<sup>th</sup> centuries BCE. Redrawn from [Rybakov, fig. 140](#). [Go back](#)

Winslow Homer, *God Is Just!*. 1865. [Go back](#)

Willoughby Verner, *Entering Nest of Griffon Vulture*. 1909. [Go back](#)

Josef Hegenbarth, *Vulture Cage*. c. 1930. [Go back](#)

Norbertine von Roth, *Vulture (Eurasian Griffon)*. 1927. [Go back](#)

John James Audubon, *Turkey Buzzard (nestling)*. 1820. [Go back](#)



# Endnotes - Chapter 1

<sup>[1]</sup> [Sibley and Ahlquist, 479-80.](#)

<sup>[2]</sup> [Rea 1983, 45-50.](#)

<sup>[3]</sup> [Sibley and Ahlquist, 485, 487, 523, 526-27, Snyder and Snyder 2000, 4, and Ferguson-Lees and Christie, 17.](#) See [Hackett et al 2008](#) for a dissenting opinion about the genetic evidence. Although it's only recently been widely accepted, the theory that New World vultures are related to storks is by no means a recent one; it's been around in one form or another since the 1870's.

<sup>[4]</sup> [Laybourne, 461-62.](#)

<sup>[5]</sup> [Cramp et al, 91, Mundy et al, 158, 177, Ali and Ripley, 297, and Rasmussen and Anderton, 92.](#)

<sup>[6]</sup> [Zihui et al, 401-08.](#)

<sup>[7]</sup> [Mundy et al, 150.](#)

<sup>[8]</sup> [Fischer, 394.](#)

<sup>[9]</sup> [Mundy et al, 177-82.](#)

<sup>[10]</sup> [Brown and Amadon, 334.](#) and Kurup, 35-36

<sup>[11]</sup> [Gray, 75.](#)

<sup>[12]</sup> [Ferguson-Lees and Christie, 412.](#)

<sup>[13]</sup> [Rich 1983, 18.](#)

<sup>[14]</sup> [Lerner and Mindell, 343-44, and Griffiths et al, 598.](#)

<sup>[15]</sup> [Whistler, 358-59.](#)

<sup>[16]</sup> [Ferguson-Lees and Christie, 415.](#)

<sup>[17]</sup> [Cramp et al, 61.](#)

<sup>[18]</sup> [Houston and Copsey, 73.](#)

<sup>[19]</sup> [Negro et al 1999, F14-F16.](#)

<sup>[20]</sup> [Lawick-Goodall and Lawick-Goodall 1966, 1468-69.](#)

<sup>[21]</sup> [Mundy et al, 27-28.](#)

<sup>[22]</sup> [Swann Part I, 18.](#)

<sup>[23]</sup> See, for example, [Schäfer 142, 164-65, Shobrak 220-22, Meinertzhagen 1959, 28, Brown and Amadon, 288, 322, Mundy et al, 269, McCulloch, 34, and Rasmussen and Anderton, 91-92.](#)

<sup>[24]</sup> [McGahan, 189, 332.](#)

<sup>[25]</sup> [Terasse et al, 483, and Sarrazin et al, 859.](#)

<sup>[26]</sup> [Del Hoyo et al, 26.](#)

<sup>[27]</sup> [Cracraft and Rich, 275, and Rich 1980, 107.](#)

<sup>[28]</sup> [Ferguson-Lees and Christie, 416.](#)

<sup>[30]</sup> [Mundy et al, 33, and Shufeldt, 13.](#)

<sup>[31]</sup> [Parmelee, 107.](#)

<sup>[32]</sup> [Ferguson-Lees and Christie, 57.](#)

<sup>[33]</sup> [Grinnell, Grinnell, and Tuell Vol. 1, 181.](#)

<sup>[34]</sup> [Mendelssohn and Leshem, 220.](#) With a few exceptions, the gripping strengths of raptors have not been measured quantitatively, as the biting strengths of some mammals, reptiles, and sharks have. Until they are measured, arguments about whether a given raptor has a “weak” or “strong” grip must remain conflicts of opinion more than contests of fact.

<sup>[35]</sup> [Brown 1971, 137; and Mundy et al, 158.](#)

<sup>[36]</sup> [Brown and Amadon, 18.](#)

<sup>[37]</sup> [Hancock, Kushlan, and Kahl, 34, 136.](#)

<sup>[38]</sup> [Snyder and Snyder 2000, 253-54.](#)

<sup>[39]</sup> [Brown and Amadon, 351-356, Ferguson-Lees and Christie, 455, and Lerner and Mindell.](#)

<sup>[40]</sup> Mortality rates of 80 to 90 percent, due largely to starvation, are typical for large vultures in their first year. Consider that before labeling them “gluttonous.”

<sup>[41]</sup> [Kruuk 1967, 188-89, König 1974, 316-17, and Houston 2001, 26-28.](#)

<sup>[42]</sup> [Wallace 2004, 275.](#)

<sup>[43]</sup> [Mundy et al, 84.](#)

- <sup>[44]</sup> [Brown and Amadon, 184, 332.](#)
- <sup>[45]</sup> [Feduccia 1996, 123.](#)
- <sup>[46]</sup> [Buckley.](#)
- <sup>[47]</sup> [Rabenold, 37.](#)
- <sup>[48]</sup> [Revers and Bögel, 367.](#)
- <sup>[49]</sup> [http://news.xinhuanet.com/english2010/sci/2011-07/14/c\\_13985755.htm](http://news.xinhuanet.com/english2010/sci/2011-07/14/c_13985755.htm)
- <sup>[50]</sup> [Grubh 1979, 1064.](#)
- <sup>[51]</sup> [Mundy et al, 156-57.](#)
- <sup>[52]</sup> [Snyder and Snyder 2000, 22-24.](#)

## Endnotes - Chapter 2

- <sup>[1]</sup> [Lange, 76.](#)
- <sup>[2]</sup> [Harris and Jefferson \(eds\), 2-3.](#)
- <sup>[3]</sup> [Miller 1925, 65.](#)
- <sup>[4]</sup> [American Museum of Natural History, 40.](#)
- <sup>[5]</sup> [Stanford and Bunn \(eds\), 318.](#)
- <sup>[6]</sup> [Tudge, 197.](#)
- <sup>[7]</sup> [Kruuk 1972, 108.](#)
- <sup>[8]</sup> [Anderson, 412.](#)
- <sup>[8]</sup> [Kruuk 1972, 146.](#)
- <sup>[10]</sup> [Lawick-Goodall and Lawick-Goodall 1971, 118.](#)
- <sup>[11]</sup> [Stanford and Bunn \(eds\), 22-23.](#)
- <sup>[12]</sup> [Kruuk 1972, 146.](#)
- <sup>[13]</sup> [Blumenschine and Cavallo, 95.](#)
- <sup>[14]</sup> [Olsen 1995, 110.](#)
- <sup>[15]</sup> [Lawick-Goodall and Lawick-Goodall 1971, 124-28.](#)
- <sup>[16]</sup> [Palmqvist et al, 62, 75.](#)
- <sup>[17]</sup> [Mundy et al, 264.](#)
- <sup>[18]</sup> [Shomon, 50-51.](#)
- <sup>[19]</sup> [American Museum of Natural History, 30.](#)
- <sup>[20]</sup> [Gore 1997, 95-6.](#)
- <sup>[21]</sup> [Mundy et al, 177.](#)
- <sup>[22]</sup> [Mundy et al, 158.](#)
- <sup>[23]</sup> [Lawick-Goodall and Lawick-Goodall 1971, 128.](#)
- <sup>[24]</sup> [Kruuk 1972, 145-46.](#)
- <sup>[25]</sup> [Ewer, 224, 371-72.](#)
- <sup>[26]</sup> [Ewer, 375.](#)
- <sup>[27]</sup> [Mundy et al, 264.](#)
- <sup>[28]</sup> [Mundy et al, 267-69.](#)
- <sup>[29]</sup> [Kruuk 1972, 145-46.](#)
- <sup>[30]</sup> [Stanford and Bunn \(eds\), 129.](#)
- <sup>[31]</sup> [Kruuk 1972, 135-43.](#)
- <sup>[32]</sup> [Stanford and Bunn \(eds\), 101, 109.](#)
- <sup>[33]</sup> [Russell 2012, 152.](#)
- <sup>[34]</sup> [Stanford and Bunn \(eds\), 101-02.](#)

<sup>[35]</sup> I understand that some biologists doing field work in Africa have supplemented their rations by pirating kills from Lions, Leopards, and Hyenas. This is not a recommended activity for tourists, although I imagine that their safari-chic clothing alone would terrify most predators into flight.

- <sup>[36]</sup> [Stanford and Bunn \(eds\), 109-10.](#)
- <sup>[37]</sup> [Campbell 1988, 25.](#)
- <sup>[38]</sup> [Anderson, 410-11.](#)
- <sup>[39]</sup> [Anderson, 412.](#)
- <sup>[40]</sup> [Boesch and Boesch-Ackermann, 248-50.](#)
- <sup>[41]</sup> [Lange, 49-55.](#)
- <sup>[42]</sup> [Stringer and Gamble, 46.](#)
- <sup>[43]</sup> [Lange, 22.](#)
- <sup>[44]</sup> [Hadingham, 89.](#)
- <sup>[45]</sup> [Hadingham, 89.](#)
- <sup>[46]</sup> [American Museum of Natural History, 58-59.](#)
- <sup>[47]</sup> [Stanford and Bunn \(eds\), 213.](#)
- <sup>[48]</sup> [Tudge, 197.](#)



<sup>[49]</sup> Some incidents of herbivores feeding on carcasses are actually attempts to devour the plant matter in the stomachs of the dead animals, which is more like second-hand herbivory than carnivory.

<sup>[50]</sup> [Sawyer et al, 128.](#)

<sup>[51]</sup> [Blumenschine and Cavallo, 96, and Palmqvist et al, 62.](#)

<sup>[52]</sup> [Stanford and Bunn \(eds\), 201.](#)

<sup>[53]</sup> [Blumenschine and Cavallo, 92-94.](#)

<sup>[54]</sup> [Russell 2012, 148.](#)

<sup>[55]</sup> [Blumenschine and Cavallo, 92.](#)

<sup>[56]</sup> [Mundy et al, 344.](#)

<sup>[57]</sup> [Dobie 2006, 80.](#)

<sup>[58]</sup> [Russell 2012, 150.](#)

<sup>[59]</sup> [Sawyer et al, 21.](#)

<sup>[60]</sup> [American Museum of Natural History, 63.](#)

<sup>[61]</sup> [Sawyer et al, 22.](#)

<sup>[62]</sup> [Houston 1979, 283-84.](#)

<sup>[63]</sup> [Rich 1983, 18.](#)

<sup>[64]</sup> [Lydekker 1890, 408.](#)

<sup>[65]</sup> [Weesie, 14-15, Jánossy, 117-19, Carrasquilla, 50-51, Finlayson, 141, and Marco, 1057-58.](#)

<sup>[66]</sup> [Lydekker 1890, 404.](#)

<sup>[67]</sup> [Carrasquilla, 51, and Marco, 1057-59.](#)

<sup>[68]</sup> [Louchart, 37.](#)

<sup>[69]</sup> [Tyrberg 2009, 74.](#)

<sup>[70]</sup> [Tyrberg 1998, 506.](#)

<sup>[71]</sup> [Mlikovsky 1998, 27.](#)

<sup>[72]</sup> [Alcover et al 1988, 276.](#)

<sup>[73]</sup> [Weesie, 13-20.](#)

<sup>[74]</sup> [Houston 1983, 143-44.](#)

<sup>[75]</sup> [Kurtén 1972, 122.](#)

<sup>[76]</sup> [Campbell 1988, 54.](#)

<sup>[77]</sup> [Mundy et al, 346-47.](#)

<sup>[78]</sup> [Hadingham, 30.](#)

<sup>[79]</sup> [Mundy et al, 191-92.](#)

<sup>[80]</sup> [Sawyer et al, 22.](#)

<sup>[81]</sup> [Hadingham, 43.](#)

<sup>[82]</sup> [Sawyer et al, 210.](#)

<sup>[83]</sup> [Hadingham, 42.](#)

<sup>[84]</sup> [Hadingham, 42.](#)

<sup>[85]</sup> [Roberts 1989, 57.](#)

<sup>[86]</sup> [Koch and Barnosky, 240.](#)

<sup>[87]</sup> [Stringer and Gamble, 162-63.](#)

<sup>[88]</sup> [Hadingham, 94-95.](#)

<sup>[89]</sup> [Butzer, 145-6.](#)

<sup>[90]</sup> [Kúrtén 1972, 77.](#)

<sup>[91]</sup> [Butzer, 144.](#)

<sup>[92]</sup> [Kurtén 1988, 56.](#)

<sup>[93]</sup> [Halfpenny and Ozanne, 132.](#)

<sup>[94]</sup> [Halfpenny and Ozanne, 159-60.](#)

<sup>[95]</sup> [Halfpenny and Ozanne, 160-61.](#)

<sup>[96]</sup> [Halfpenny and Ozanne, 158.](#)

<sup>[97]</sup> [Stringer and Gamble, 165-67.](#)

<sup>[98]</sup> [Halfpenny and Ozanne, 137-40.](#)

<sup>[99]</sup> [Moreau, 403.](#)

<sup>[100]</sup> [American Museum of Natural History, 73.](#)

<sup>[101]</sup> [Hadingham, 55.](#)

- <sup>[102]</sup> [Sawyer et al, 22.](#)
- <sup>[103]</sup> [Tudge, 288.](#)
- <sup>[104]</sup> [Stringer and Gamble, 214-15.](#)
- <sup>[105]</sup> [Conard, Malina, and Münzel, 737-40.](#)
- <sup>[106]</sup> [Schüz and König, 467.](#)
- <sup>[107]</sup> [Conard, Malina, and Münzel, 737-40.](#)
- <sup>[108]</sup> ["Neanderthals." <http://en.wikipedia.org/wiki/Neanderthals>](#)
- <sup>[109]</sup> [Kürten 1972, 167.](#)
- <sup>[110]</sup> [Stuart, 263-65.](#)
- <sup>[111]</sup> [Stringer and Gamble, 193-94.](#)
- <sup>[112]</sup> [Stuart, 263.](#)
- <sup>[113]</sup> [Kürten 1972, 164.](#)
- <sup>[114]</sup> [Stuart, 266.](#)
- <sup>[115]</sup> [Stuart, 263-65.](#)
- <sup>[116]</sup> [Tyrberg 1998, 506.](#)
- <sup>[117]</sup> [Jánossy, 118.](#)
- <sup>[118]</sup> [Tyrberg 2009, 74, 105.](#)

<sup>[119]</sup> [Koch and Barnosky, 235](#), and [Mackay, 11](#). This pattern of small groups establishing coastal colonies in new lands and only later penetrating into the interior, with all of the ecological disruption that follows, has persisted into historical times; it can easily be found in the historical records of European colonization in the Americas.

- <sup>[120]</sup> [Lange, 194-95](#), and [Flannery, 175-78.](#)
- <sup>[121]</sup> [Mundy et al, 19.](#)
- <sup>[122]</sup> [Campbell, Jr., Scott, and Springer, 174.](#)
- <sup>[123]</sup> [Campbell, Jr., and Stenger, 1-10.](#)
- <sup>[124]</sup> [Fisher 1944, 741.](#)
- <sup>[125]</sup> [Campbell 1992, 60.](#)
- <sup>[126]</sup> [Hertel 1995, 901-02.](#)
- <sup>[127]</sup> [Fox-Dobbs et al, 687.](#)
- <sup>[128]</sup> [Campbell 1992, 66.](#)
- <sup>[129]</sup> [Schaller 1972, 132, 361](#), and [Kitchener, 82.](#)
- <sup>[130]</sup> [Rich 1983, 12.](#)
- <sup>[131]</sup> [Miller and Howard 1938, 169-73.](#)
- <sup>[133]</sup> [Feduccia 1974, 251.](#)
- <sup>[134]</sup> [Miller 1916, 108.](#)
- <sup>[135]</sup> [Miller 1916, 109.](#)
- <sup>[136]</sup> [Miller 1916, 109.](#)
- <sup>[137]</sup> [Howard 1932, 46.](#)
- <sup>[138]</sup> [Tyrberg 1998, 505.](#) For the sake of balance, I should point out that there is no such fossil evidence yet

available for most other Old World bird species, either.

<sup>[139]</sup> [Howard 1932, 73.](#) It should be pointed out that Howard immediately dismissed the idea as "unlikely," on the rather hazy grounds that the American Vulture and Egyptian Vulture appeared to be more closely related to the living Old World vultures than to the Errantgeier. However, the genetically proven relationship between the Lammergeier and Egyptian Vulture renders that objection at least half obsolete.

- <sup>[140]</sup> [Feduccia 1974, 254.](#)
- <sup>[141]</sup> [Howard 1932, 73.](#)
- <sup>[142]</sup> [Dement'ev et al, 271, 291.](#)
- <sup>[143]</sup> [Dresser, 408.](#)
- <sup>[144]</sup> [Steadman et al, 585.](#)
- <sup>[145]</sup> [Rich 1983, 12.](#)
- <sup>[146]</sup> [Hertel 1992, 415](#), and [McMillan, 164.](#)
- <sup>[147]</sup> [Brodkorb, 250-78](#), and [Lundelius et al, 311-353.](#)
- <sup>[148]</sup> [Steadman and Miller, 422-24.](#)
- <sup>[149]</sup> [Arredondo trans Olson, 173-75.](#)
- <sup>[150]</sup> [Balouet and Alibert, 96.](#)

- [151] [Campbell, Jr. and Stenger, 1-2.](#)
- [152] [Tambussi and Noriega, 182.](#)
- [153] [Rich 1983, 12.](#)
- [154] [Campbell, Jr. 1979, 73.](#)
- [155] [Fox-Dobbs et al, 687.](#)
- [156] [Emslie, 768-69.](#)
- [157] [Fox-Dobbs et al, 687.](#)
- [158] [Koch and Barnosky, 232-33.](#)
- [159] [Alroy, 134.](#)
- [160] [Bonnichsen and Turnmire, 290.](#)
- [161] [Bonnichsen and Turnmire, 290.](#)
- [162] [Martin and Steadman, 17-55.](#)
- [163] [An excellent recent review of the debate is found in Koch and Baronsky.](#)
- [164] [Alroy, 125, and Koch and Barnosky, 227, 240-42.](#)
- [165] [Macphee and Fleming, 365.](#)

It seems increasingly likely that the current drastic climate changes will eventually result in some bird and/or mammal extinctions; but considering the vast array of human-induced threats now faced by all creatures on Earth, such extinctions would almost certainly be due to a combination of factors, rather than solely because of climate stress. (In other words, such unfortunate events would support a combined overkill and climate-change cause for the Pleistocene extinctions, not a strictly climatic cause.)

- [166] [Koch and Barnosky, 233.](#)
- [167] [Mundy et al, 347.](#)
- [168] [Ward, 182.](#)
- [169] [Ward, 134.](#)
- [170] [Alroy, 134.](#)
- [171] [Emslie, 769.](#)
- [172] [Janzen 1983, 598-99.](#)
- [173] [Houston 1979, 265.](#)
- [174] [Houston 1979, 283.](#)
- [175] [Koch and Barnosky, 239.](#)
- [176] [Mingozzi and Estève, 160, and Bijleveld, 33.](#)
- [177] [Houston 1979, 283.](#)
- [178] [Newton, 133.](#)
- [179] [Richardson, Mundy, and Plug, 40.](#)
- [180] [Mundy et al, 93-94.](#)
- [181] [Bertran and Margalida, 288-89.](#)
- [182] [Bijleveld, 74.](#)
- [183] [Fox-Dobbs et al, 687.](#)
- [184] [Swann part I, 4.](#)
- [185] [Koford, 59.](#)
- [186] [Fox-Dobbs et al, 687.](#)
- [187] [Fox-Dobbs et al, 688.](#)
- [188] [Swann part I, 4.](#)
- [189] [Alroy, 134.](#)
- [190] [Miller 1925, 86.](#)
- [191] [Miller 1957, 59-63.](#)
- [192] [Brodkorb, 268-271, and Steadman and Martin, 467-68.](#)
- [193] [Miller 1925, 81.](#)
- [194] [Roberts 1989, 57.](#)
- [195] [Tyrberg 2009, 74, 105.](#)
- [196] [Tyrberg 2009, 74, 105.](#)
- [197] [Alcover, Seguí, and Bover, 175.](#)
- [198] [Tyrberg 2009, 74.](#)
- [199] [Robert and Vigne, 769.](#)
- [200] [Louchart, 38.](#)



- [<sup>\[201\]</sup> Robert and Vigne, 769.](#)
- [<sup>\[202\]</sup> Weesie, 6.](#)
- [<sup>\[203\]</sup> Turvey, 28.](#)
- [<sup>\[204\]</sup> Tyrberg 1998, 506.](#)
- [<sup>\[205\]</sup> Weesie, 20, 80.](#)
- [<sup>\[206\]</sup> Alcover et al 1988, 281.](#)
- [<sup>\[207\]</sup> Kurtén 1968, 135.](#)
- [<sup>\[208\]</sup> Patton, 51.](#)
- [<sup>\[209\]</sup> Turvey, 32.](#)
- [<sup>\[210\]</sup> Lange, 183.](#)
- [<sup>\[211\]</sup> Brakefield, 102.](#)
- [<sup>\[212\]</sup> Alroy, 134.](#)
- [<sup>\[213\]</sup> Martin and Steadman, 36-37.](#)
- [<sup>\[214\]</sup> Miller 1925, 86.](#)

## Endnotes - Chapter 3

- <sup>[1]</sup> [Viré, 1013.](#)
- <sup>[2]</sup> [Mundy et al, 152.](#)
- <sup>[3]</sup> [Solecki and McGovern, 85.](#)
- <sup>[4]</sup> [Solecki and McGovern, 94-95.](#)
- <sup>[5]</sup> [Solecki and McGovern, 85.](#)
- <sup>[6]</sup> [Solecki and McGovern, 86-87.](#)
- <sup>[7]</sup> [Serjeantson, 200, 359.](#)
- <sup>[8]</sup> [Mellaart 1978, 13.](#)
- <sup>[9]</sup> [Mellaart 1975, 99.](#)
- <sup>[10]</sup> [Mellaart 1975, 99.](#)
- <sup>[11]</sup> [Solecki and McGovern, 87-88.](#)
- <sup>[12]</sup> [Gimbutas 1989, 189.](#)
- <sup>[13]</sup> [Gimbutas 1989, 187.](#)
- <sup>[14]</sup> [Russell 2012, 69.](#)
- <sup>[15]</sup> [Richardson, Mundy, and Plug, 29.](#)
- <sup>[16]</sup> [Richardson, Mundy, and Plug, 40.](#)
- <sup>[17]</sup> [Balter, 287-88., and Russell 2012, 69.](#)
- <sup>[18]</sup> [Reeves, 525-27.](#)
- <sup>[19]</sup> [Balter, 287-88.](#)
- <sup>[20]</sup> [Cameron 1981, 7.](#)
- <sup>[21]</sup> [Cameron 1981, 30.](#)
- <sup>[22]</sup> [Gimbutas 1989, 187.](#)
- <sup>[23]</sup> [Mellaart 1975, 186.](#)

<sup>[24]</sup> This "Upper=Southern, Lower=Northern" concept is confusing to people used to thinking of north as "up," but the Egyptians were actually thinking in terms of the flow of the Nile. The Nile flows north to the Mediterranean Sea; hence south is upstream, and north is downstream.

- <sup>[25]</sup> [Lesko, 64.](#)
- <sup>[26]</sup> [Lesko, 67.](#)
- <sup>[27]</sup> [Lesko, 65.](#)
- <sup>[28]</sup> [Budge, 24.](#)
- <sup>[29]</sup> [Lesko, 65.](#)
- <sup>[30]</sup> [Mercatante, 106.](#)
- <sup>[31]</sup> [Lesko, 66.](#)
- <sup>[32]</sup> [Mercatante, 106.](#)
- <sup>[33]</sup> [Horapollo, 64-65.](#)
- <sup>[34]</sup> [Horapollo, 64-65.](#)
- <sup>[35]</sup> [Horapollo, 64-65.](#)
- <sup>[36]</sup> [Ann and Imel, 89.](#)
- <sup>[37]</sup> [Lesko, 67.](#)
- <sup>[38]</sup> [Collins, 342.](#)
- <sup>[39]</sup> [Lesko, 66.](#)
- <sup>[40]</sup> [Lesko, 68.](#)
- <sup>[41]</sup> [Lesko, 69.](#)
- <sup>[42]</sup> [Lesko, 130, and Mercatante, 99.](#)
- <sup>[43]</sup> [Mercatante, 99.](#)
- <sup>[44]</sup> [Ann and Imel, 87.](#)
- <sup>[45]</sup> [Stuart 1883, 215-16.](#)
- <sup>[46]</sup> [Coulter and Turner, 111.](#)
- <sup>[47]</sup> [Ann and Imel, 89.](#)
- <sup>[48]</sup> [Mercatante, 105.](#)
- <sup>[49]</sup> [Ann and Imel, 84.](#)

- <sup>[50]</sup> [Houlihan, 42.](#)
- <sup>[51]</sup> [Betrò, 103.](#)
- <sup>[52]</sup> [Houlihan, 39-40.](#)
- <sup>[53]</sup> [Betrò, 103.](#)
- <sup>[54]</sup> [Houlihan and Goodman, 40.](#)
- <sup>[55]</sup> [Viré, 1012.](#)
- <sup>[56]</sup> [Parmelee, 51.](#)
- <sup>[57]</sup> [Rudolf trans Danford, 510.](#)
- <sup>[58]</sup> [Dresser, 394.](#)
- <sup>[59]</sup> [Swann part II, 55.](#)
- <sup>[60]</sup> [Murray et al, Vol. 10, 330-31.](#)
- <sup>[61]</sup> [Newton and Chancellor \(eds\), 67.](#)
- <sup>[62]</sup> [Wright 2001, 128.](#)
- <sup>[63]</sup> [Wright 2001, 160.](#)

<sup>[64]</sup> I suspect that these two were intended to represent different species than the “common” vultures, but as the tale mentions no identifying characteristics, it’s impossible to be sure.

- <sup>[65]</sup> [Wright 2001, 175-78.](#)
- <sup>[66]</sup> [Zaehner, 161.](#)
- <sup>[67]</sup> [Settegast, 215.](#)
- <sup>[68]</sup> [Zaehner, 162-63.](#)
- <sup>[69]</sup> [Boyce, 13-15.](#)
- <sup>[70]</sup> [Hastings, Selbie, and Gray, Vol. IV, 504.](#)
- <sup>[71]</sup> [Olmstead, 17.](#)
- <sup>[72]</sup> [Boyce, 2.](#)
- <sup>[73]</sup> [Godrej and Mistree, 325.](#)
- <sup>[74]</sup> [Boyce, 59.](#)
- <sup>[75]</sup> *History*, Book 1, Verse 140.

<sup>[76]</sup> Most writers refer to this practice as “sky burial,” borrowing terminology from the Tibetan vulture funerals that we’ll visit in the next chapter. In my opinion, this terminology is misleading and inaccurate, for two reasons: it implies that the Zoroastrian funerals are more or less identical to the Tibetan Buddhist funerals, which they most definitely aren’t; and to the Zoroastrians, the sky is one of the sacred elements that should not be polluted by the presence of the dead. Therefore, referring to their funerals as “sky burials” is potentially insulting, even if unintentionally.

- <sup>[77]</sup> [Godrej and Mistree, 325.](#)
- <sup>[78]</sup> [Huart trans Dobie, 175.](#)
- <sup>[79]</sup> [Boyce, 52.](#)
- <sup>[80]</sup> [Huart trans Dobie, 177.](#)
- <sup>[81]</sup> [Cesaresco, 151.](#)
- <sup>[82]</sup> [Boyce, 44-45.](#)
- <sup>[83]</sup> [Jones 1995, 448.](#)
- <sup>[84]</sup> [Keith and Carnoy, 291.](#)
- <sup>[85]</sup> [Hastings, Selbie, and Gray, Vol. IV, 503.](#)
- <sup>[86]</sup> [Olmstead, 26.](#)
- <sup>[87]</sup> [Ferdowsi trans Davis, 158.](#)
- <sup>[88]</sup> [Ferdowsi trans Davis, 293.](#)
- <sup>[89]</sup> [Huart trans Dobie, 8, and Attar trans Tassy and Nott, 22-23, 143.](#)
- <sup>[90]</sup> [Chand, 36-37.](#)
- <sup>[91]</sup> [Macdonnell, 157.](#)
- <sup>[92]</sup> [Bloomfield, 6-20.](#)
- <sup>[93]</sup> [Bloomfield, 18.](#)
- <sup>[94]</sup> [Bloomfield, 1-3.](#)
- <sup>[95]</sup> [Chand, 38-39.](#)
- <sup>[96]</sup> [Chand, 40.](#)
- <sup>[97]</sup> [Tawney \(trans\) Vol. I, 185.](#)
- <sup>[99]</sup> ["Soma." <http://en.wikipedia.org/wiki/Soma>](#)



<sup>[100]</sup> [OED, Vol. VII, 321.](#)

<sup>[101]</sup> ["Soma." http://en.wikipedia.org/wiki/Soma](#)

<sup>[102]</sup> ["Soma." http://en.wikipedia.org/wiki/Soma](#)

<sup>[103]</sup> ["Soma." http://en.wikipedia.org/wiki/Soma](#)

<sup>[104]</sup> [Dresser, 408.](#)

<sup>[105]</sup> [Browne Vol. I, 120-22.](#)

<sup>[106]</sup> [Knappert, 286-87.](#)

<sup>[107]</sup> There is one odd passage in [Herodotus's \*Histories\*](#) that could represent a loose link with the cult of the Homa. The Greek historian wrote that in 530 BCE, Cyrus the Great had a dream in which he saw Darius (who would succeed him as ruler of Persia) "bearing wings on his shoulders, one of them casting a shadow over Asia, the other over Europe." (1.209) However, this dream was no welcome portent to Cyrus, for he interpreted it to mean that Darius was plotting against him; and in any case he was killed in battle soon afterwards.

<sup>[108]</sup> [Knappert, 286-87.](#)

<sup>[109]</sup> [Ferdowsi trans Davis, 108.](#)

<sup>[110]</sup> [Mirza trans Phillott, 27-28, Phillott, 533, and Stewart, 110.](#)

<sup>[111]</sup> [Mirza trans Phillott, 27-28.](#)

<sup>[112]</sup> [Phillott, 532-33.](#)

<sup>[113]</sup> I've been unable to determine if this emphasis on bones was intended to be an allusion to the Huma's bone-eating habits; it seems more likely that Farid's choice of metaphor was merely coincidental.

<sup>[114]</sup> [Attar trans Tassy and Nott, 22-23.](#)

<sup>[115]</sup> [Browne Vol. I, 120-22.](#)

<sup>[116]</sup> [Ferdowsi trans Davis, 63-66.](#)

<sup>[117]</sup> [1.108-1.110.](#)

<sup>[118]</sup> [Ferdowsi trans Davis, 104-06.](#)

<sup>[119]</sup> [Ferdowsi trans Davis, 108.](#)

<sup>[120]</sup> [Eberhart Vol. II, 499, and Shipley, 250-52, 354-55.](#)

<sup>[121]</sup> [Celoria, 120.](#)

<sup>[122]</sup> [Ali and Ripley, 314.](#)

<sup>[123]</sup> [Shipley, 18.](#)

<sup>[124]</sup> [Ali and Ripley, 312.](#)

<sup>[125]</sup> [Attar trans Tassy and Nott, 131.](#)

<sup>[126]</sup> [Ferdowsi trans Davis, 457-58.](#)

<sup>[127]</sup> [Preble, 54.](#)

<sup>[128]</sup> Unless otherwise noted, all of the Biblical excerpts in this chapter are quoted from the New Revised Standard Version.

<sup>[129]</sup> [Allen 1963, 57.](#)

<sup>[130]</sup> [Klingender, 213.](#)

<sup>[131]</sup> [Clark 1979, 48, and Tristram 1867, 174.](#)

<sup>[132]</sup> This "blood" was probably meant to refer to the liquid which griffons regurgitate for their young, yet another trait not shared by any eagle.

<sup>[133]</sup> [Young rev. by William B. Stevenson and David Wimbish \(a\), 279.](#)

<sup>[134]</sup> [Tristram 1885, 95.](#)

<sup>[135]</sup> [Betrò, 103.](#)

<sup>[136]</sup> [Tristram 1885, 95.](#)

<sup>[137]</sup> [Dresser, 376.](#)

<sup>[138]</sup> [Yosef and Bahat, 211.](#)

<sup>[139]</sup> [Tristram 1867, 173-75.](#)

<sup>[140]</sup> [Johnson, 95.](#)

<sup>[141]</sup> [Arav, 40.](#)

<sup>[142]</sup> [Arav, 45.](#)

<sup>[143]</sup> [Arav, 41, and Cameron 1981, 32-33.](#)

<sup>[144]</sup> [Cameron 1981, 32-33.](#)

<sup>[145]</sup> [Arav, 43.](#)

<sup>[146]</sup> [Arav, 45.](#)

<sup>[147]</sup> [Arav, 48-49.](#)

<sup>[148]</sup> [Hawting, 115-16.](#)

<sup>[149]</sup> [Telfer \(ed\), 179.](#)

<sup>[150]</sup> [Boyce, 91.](#)

<sup>[151]</sup> [Procopius trans Dewing Vol. I xii., 2-7.](#) In response to this demand, the Iberians asked for help from the Christian Byzantine Empire, which sparked off one of many clashes between the two empires.

<sup>[149]</sup> [Viré, 1012.](#)

<sup>[150]</sup> [Hawting, 115-16.](#)

<sup>[151]</sup> [Hastings, Selbie, and Gray, Vol. IV, 662-63.](#)

<sup>[152]</sup> [Hastings, Selbie, and Gray, Vol. IV, 662-63.](#)

<sup>[153]</sup> [Allen 1963, vii.](#)

<sup>[154]</sup> [Allen 1963, 57.](#)

<sup>[155]</sup> [Allen 1963, 282.](#)

<sup>[156]</sup> It may not be named after a vulture any more, but Lyrae looks so much like a vulture (or eagle) that illustrative star maps have often portrayed the lyre of Lyrae superimposed over a bird of prey.

<sup>[157]</sup> [Viré, 1012.](#)

<sup>[158]</sup> [Viré, 1014.](#)

<sup>[159]</sup> [Parmelee, 107.](#)

<sup>[160]</sup> [Viré, 1013-14.](#)

<sup>[161]</sup> [Bosworth et al, 1014.](#)

<sup>[162]</sup> [Viré, 1013.](#)

<sup>[163]</sup> [Walker and Uysal, 284.](#)

<sup>[164]</sup> [Viré, 1013.](#)

<sup>[165]</sup> [Walker and Uysal, 283-84.](#)

<sup>[166]</sup> [Goodrich-Freer, 227.](#)

<sup>[167]</sup> [Parmelee, 108.](#)

<sup>[168]</sup> [Viré, 1013.](#)

<sup>[169]</sup> [Preble, 65.](#)

<sup>[170]</sup> [Viré, 1013.](#)

<sup>[171]</sup> [Farrokh, 264.](#)

<sup>[172]</sup> [Writer, 9.](#)

<sup>[173]</sup> [Jackson 1906, 398.](#)

<sup>[174]</sup> [Singh 1970, 144-45.](#)

<sup>[175]</sup> [Jackson 1906, 398.](#)

<sup>[176]</sup> [Farrokh, 269.](#)

<sup>[177]</sup> [Boyce, 157-58.](#)

<sup>[178]</sup> [Boyce, 157-58.](#)

<sup>[179]</sup> [Boyce, 158.](#)

<sup>[180]</sup> [Ritter and O'Kane, 49.](#)

<sup>[181]</sup> The Islamic Republic of Iran currently recognizes the Iranian Zoroastrians as a “protected minority,” although it’s anyone’s guess at to just how much protection that classification really entails.

<sup>[182]</sup> [Godrej and Mistree, 287-90,](#) and [Boyce, 221.](#)

<sup>[183]</sup> [Walker and Uysal, 181-83.](#)

## Endnotes - Chapter 4

<sup>[1]</sup> [Davis 2002, 214.](#)

<sup>[2]</sup> [Walker 1983 Vol. I, 155.](#)

<sup>[3]</sup> [Elwin 1980, 27.](#)

<sup>[4]</sup> The *brahmins* were also threatened with the company of vultures; it was said that any *brahmin* who misappropriated money that he had received for a sacrifice would be reincarnated as either a vulture or a crow, and condemned to live as one for a century.

<sup>[5]</sup> [Beer 1999, 249.](#)

<sup>[6]</sup> [Prakash, 133.](#)

<sup>[7]</sup> [Lydekker et al 1897, 259.](#)

<sup>[8]</sup> [Houston 1996, 328.](#)

<sup>[9]</sup> [Ali and Ripley, 308.](#)

<sup>[10]</sup> [Swann part I, 41.](#)

<sup>[11]</sup> [Beer 1999, 270.](#)

<sup>[12]</sup> [Pain et al 2003, 668.](#)

<sup>[13]</sup> Indo-European words preceded with an asterisk \* are extrapolated from existing words by linguistic study; there is no concrete evidence that these words ever actually existed.

<sup>[14]</sup> [Shiple, 124.](#)

<sup>[15]</sup> [Bellezza 2008, 821.](#)

<sup>[16]</sup> [Shiple, 125.](#)

<sup>[17]</sup> [Ali and Ripley, 298, 306.](#)

<sup>[18]</sup> [Fischer, 392.](#)

<sup>[19]</sup> [Elwin 1949, 198.](#)

<sup>[20]</sup> [Elwin 1949, 199.](#)

<sup>[21]</sup> [Elwin 1954, 335-46.](#)

<sup>[22]</sup> [Atkinson, 804-05.](#)

<sup>[23]</sup> [Vogel, 53, 181, 235.](#)

<sup>[24]</sup> [Tawney \(trans\) Vol II, 317.](#)

<sup>[25]</sup> [Walker 1983 Volume I, 381,](#) and [Ions, 101-02.](#)

<sup>[26]</sup> [Tawney \(trans\) Vol I, 53-54, 269.](#)

<sup>[27]</sup> [Tawney \(trans\) Vol I, 76-77.](#)

<sup>[28]</sup> [Shiple, 107-09.](#)

<sup>[29]</sup> [Shiple, 423-24.](#)

<sup>[30]</sup> [Turner, 216.](#)

<sup>[31]</sup> [Fischer, 392.](#)

<sup>[32]</sup> [Atkinson, 296.](#)

<sup>[33]</sup> [Beer 1999, 68,](#) and [Bellezza 2005, 118, 232.](#)

<sup>[34]</sup> [Hsiao-chieh, Hui-Chen, and Thern, 8.](#)

<sup>[35]</sup> [Vogel, 182.](#)

<sup>[36]</sup> [Tawney \(trans\) Vol II, 312-317.](#)

<sup>[37]</sup> [Beer 1999, 76.](#)

<sup>[38]</sup> [Shiple, 277.](#)

<sup>[39]</sup> [Macdonnell, 48,](#) [Platts 1, 26,](#) and [Turner 24, 74.](#) Some of the associated words of these two terms have meanings such as "swallow" (for *ab*) and, even more suggestively, "erected feathers" and "outspread tail" for *ukka*.

<sup>[40]</sup> [Ali and Ripley, 314.](#)

<sup>[41]</sup> [Shiple, 18.](#)

<sup>[42]</sup> [Gubernatis, 185,](#) and [Dharma, 169.](#)

<sup>[43]</sup> [Dharma, 169.](#)

<sup>[44]</sup> [Dharma, 198-99.](#)

<sup>[45]</sup> [Dharma, 207-08.](#)

<sup>[46]</sup> [Dave, 196-97.](#)



<sup>[47]</sup> I know this seems like a recurring theme by now, but Jatayu is frequently misrepresented in English translations of the *Ramayana* as – you guessed it – an “eagle.”

<sup>[48]</sup> [Rasmussen and Anderton, 90-91.](#)

<sup>[49]</sup> Oh, all right: *shawk* = “shit” + “hawk.” I hope you’re happy.

<sup>[50]</sup> [Satheesan 2000, 168.](#)

<sup>[51]</sup> [Dave, 193.](#)

<sup>[52]</sup> [Dave, 193-94.](#)

<sup>[53]</sup> [Dave, 192.](#)

<sup>[54]</sup> [Legge, 2.](#)

<sup>[55]</sup> [Satheesan 2000, 169.](#)

<sup>[56]</sup> [Whistler, 357.](#)

<sup>[57]</sup> [Legge, 4.](#)

<sup>[58]</sup> [Baker 1935, 18.](#)

<sup>[59]</sup> [Mirza trans Phillott, 35.](#)

<sup>[60]</sup> [Mirza trans Phillott, 112.](#)

<sup>[61]</sup> Just how Ibrahim could have known this if all three birds were out of sight is entirely unexplained.

<sup>[62]</sup> [Burton 1852, 23-25.](#)

<sup>[63]</sup> [Burton 1852, 76.](#)

<sup>[64]</sup> [Ali and Ripley, 276.](#)

<sup>[65]</sup> [Burton 1852, 39.](#)

<sup>[66]</sup> [Ali and Ripley, 296.](#)

<sup>[67]</sup> [Satheesan 2000, 165.](#)

<sup>[68]</sup> [Ali and Ripley, 297.](#)

<sup>[69]</sup> [Ferguson-Lees and Christie, 444.](#)

<sup>[70]</sup> [Editors of the Bombay Natural History Society, 782.](#)

<sup>[71]</sup> [Grubh 1983, 111.](#)

<sup>[72]</sup> [Gyldenstolpe, 132.](#)

<sup>[73]</sup> [Loisel, 18-19.](#)

<sup>[74]</sup> [Ali and Ripley, 297,](#) and [Rasmussen and Anderton, 92.](#)

<sup>[75]</sup> [Roy 1978, 191-92.](#)

<sup>[76]</sup> [Cesaresco, 325.](#)

<sup>[77]</sup> [Ali and Ripley, 296.](#)

<sup>[78]</sup> [Turner, 214,](#) and [Platts, 892.](#)

<sup>[79]</sup> [Chand, 153.](#) The reference to “sparrows” is most likely a mistranslation for some other bird species, but I have no idea which.

<sup>[80]</sup> [Chand, 9, 47, 61.](#)

<sup>[81]</sup> [Holmes, 71.](#)

<sup>[82]</sup> [Bompas, 289-92.](#)

<sup>[83]</sup> [Donald, 254.](#)

<sup>[84]</sup> [Kurup, 50.](#)

<sup>[85]</sup> [Kurup, 35-36, 50.](#)

<sup>[86]</sup> [Wells, Round, and Treesucon, 148.](#)

<sup>[87]</sup> [Kurup, 22-23.](#)

<sup>[88]</sup> [Grubh 1979, 1061.](#)

<sup>[89]</sup> [Fox 1914, 395-96.](#)

<sup>[90]</sup> [Schaller 1967, 301.](#)

<sup>[91]</sup> [Quammen, 92-93.](#)

<sup>[92]</sup> [Grubh 1979, 1066-67.](#)

<sup>[93]</sup> [Quammen, 92-93.](#)

<sup>[94]</sup> [Singh 2007, 193.](#)

<sup>[95]</sup> [Mouhot, 382.](#)

<sup>[96]</sup> [Lebar, Hickey, and Musgrave, 262.](#)

<sup>[97]</sup> [Mueggler, 28.](#)

<sup>[98]</sup> [Basham, 177.](#)

<sup>[99]</sup> [Elwin 1954, 336.](#)

<sup>[100]</sup> [Singh 1970, 128, 175.](#)

<sup>[101]</sup> [Singh 1970, 123.](#)

<sup>[102]</sup> [Singh 1970, 98-100, 175.](#)

<sup>[103]</sup> [Singh 1970, 160.](#)

<sup>[104]</sup> [Buchanan, 29-30.](#)

<sup>[105]</sup> [Elwin 1954, 543.](#)

<sup>[106]</sup> [Elwin 1939, 175-76.](#)

<sup>[107]</sup> [Elwin 1980, 86-87.](#)

<sup>[108]</sup> [Dement'ev et al, 284,](#) and [Herklots, 59.](#)

<sup>[109]</sup> For examples, see the entire second half of [Clarke and Gregory.](#)

<sup>[110]</sup> [Dresser, 387.](#) Dresser's statement is true in the sense that there is no *single* word in Chinese to express "vulture." In Chinese and Japanese, the terms used to express "vulture" translate into English as "bald eagle" or "bald hawk," and the same is probably true in most languages from lands where the carrion birds have a minimal or nonexistent presence. Oddly enough, there don't appear to be any terms for hawks or eagles in any language that translate as "fully feathered vulture."

<sup>[111]</sup> [Herklots, 58-59.](#)

<sup>[112]</sup> [Pain et al 2003, 663.](#)

<sup>[113]</sup> [Macpherson, 180-81.](#)

<sup>[114]</sup> [Dresser, 409.](#)

<sup>[115]</sup> [Cheng, 105-06.](#)

<sup>[116]</sup> [Brazil, 96.](#)

<sup>[117]</sup> [Ploeg and Minter, 109.](#)

<sup>[118]</sup> [Pan, 78.](#)

<sup>[119]</sup> [White 1939, 7-14.](#)

<sup>[120]</sup> [http://www.earthwatch.org/newsandevents/pressreleases/2007\\_press\\_releases/03\\_05\\_07\\_mongolian\\_vulture.html](http://www.earthwatch.org/newsandevents/pressreleases/2007_press_releases/03_05_07_mongolian_vulture.html)

During the ice ages, it's quite possible that these vultures also migrated into the Japanese archipelago, which was connected to the rest of Asia via land bridge.

<sup>[121]</sup> [Austin 1948, 85.](#)

<sup>[122]</sup> [Li and Kasorndorkbua, 57.](#)

<sup>[123]</sup> [Austin 1948, 84.](#)

<sup>[124]</sup> [Terry, 47, 75, 100, 102.](#)

<sup>[125]</sup> [Kwi-Gon and Dong-Gil, 12.](#)

<sup>[126]</sup> [Shore.](#)

<sup>[127]</sup> [Dunham, 33.](#)

<sup>[128]</sup> [Beer 1999, 85.](#)

<sup>[129]</sup> [Beer 1999, 251.](#)

<sup>[130]</sup> [Beer 1999, 270.](#)

<sup>[131]</sup> [Bellezza 2005, 442.](#)

<sup>[132]</sup> [Bellezza 2005, 120, 130, 161, 341, 439.](#)

<sup>[133]</sup> [Bellezza 2005, 120.](#)

<sup>[134]</sup> [Bellezza 2005, 121, 171.](#)

<sup>[135]</sup> [Bellezza 2005, 174.](#)

<sup>[136]</sup> [Bellezza 2005, 31.](#)

<sup>[137]</sup> [Ye, 56.](#)

<sup>[138]</sup> [Beer 1999, 309.](#)

<sup>[139]</sup> [McArthur, 52.](#)

<sup>[140]</sup> [H. H. the Dalai Lama trans Hopkins, 20.](#)

<sup>[141]</sup> [McArthur, 52.](#)

<sup>[142]</sup> [Williams, 418,](#) and [Bernbaum 72-75.](#)

<sup>[143]</sup> [Bellezza 2005, 209-10.](#)

<sup>[144]</sup> [Bates and Lowther, 252.](#)

<sup>[145]</sup> [Whistler, 353..](#)

<sup>[146]</sup> [Ali and Ripley, 303.](#)

- <sup>[147]</sup> [Fischer, 396.](#)
- <sup>[148]</sup> [Prejevalsky trans Morgan, 240-42.](#)
- <sup>[149]</sup> [Bellezza 2008, 506-07.](#)
- <sup>[150]</sup> [Bellezza 2008, 434.](#)
- <sup>[151]</sup> [Bellezza 2008, 225, 238-39.](#)
- <sup>[152]</sup> [Bellezza 2008, 228.](#)
- <sup>[153]</sup> [Bellezza 2008, 376.](#)
- <sup>[154]</sup> [Landon, 425-426.](#)
- <sup>[155]</sup> [Bree, 19, and Dement'ev et al, 293.](#)
- <sup>[156]</sup> [Lydekker et al 1897, 253.](#)
- <sup>[157]</sup> [Landon, 425-426.](#)
- <sup>[158]</sup> [Dresser, 409.](#)
- <sup>[159]</sup> [Swann part I, 5-6.](#)
- <sup>[160]</sup> [Vaurie, 69.](#)

<sup>[161]</sup> [Perry, 26.](#) Lest the reader think this a flight of fancy, I would point out that Bar-headed Geese have actually been seen flying directly over the peak of Everest, and griffons have been recorded flying at altitudes more than a mile (1.6 km) higher than Everest's 29,023-foot (8,852 m) summit.

- <sup>[162]</sup> [Bellezza 2005, 471.](#)
- <sup>[161]</sup> [Bellezza 2005, 87, 154.](#)
- <sup>[162]</sup> [Bellezza 2005, 372.](#)
- <sup>[163]</sup> [Bellezza 2005, 76, 174, 179.](#)
- <sup>[164]</sup> [Bellezza 2005, 102, 118.](#)
- <sup>[165]</sup> [Bellezza 2005, 78.](#)
- <sup>[166]</sup> [Bellezza 2008, 308.](#)
- <sup>[167]</sup> [Bellezza 2008, 383.](#)
- <sup>[168]</sup> [Bellezza 2005, 368.](#)
- <sup>[169]</sup> [Bellezza 2005, 488.](#)
- <sup>[170]</sup> [Bellezza 2008, 240.](#)
- <sup>[171]</sup> [Bellezza 2005, 188.](#)
- <sup>[172]</sup> For more about bird horns, see [Bellezza 2008, 442-47.](#)
- <sup>[173]</sup> [Bellezza 2008, 508-10.](#)
- <sup>[174]</sup> [Bellezza 2005, 319.](#)

<sup>[175]</sup> [Thomas \(Texts, Translations, and Notes\), 29-31.](#) The Tibetologist John Vincent Bellezza has stated ([Bellezza 2008, 514-17](#)) that Thomas misinterpreted and/or mistranslated several details of this story. Even so, I rather like the flavor of Thomas's translation.

- <sup>[176]</sup> [Bellezza 2005, 109.](#)
- <sup>[177]</sup> [Bellezza 2005, 155.](#)
- <sup>[178]</sup> [Bellezza 2005, 119.](#)
- <sup>[179]</sup> [Bellezza 2005, 232.](#)
- <sup>[180]</sup> [Bunker, Wyatt, and Sun, 9-10.](#)
- <sup>[181]</sup> [Goldstein and Beall, 44.](#)
- <sup>[182]</sup> [Goldstein and Beall, 49.](#)
- <sup>[183]</sup> [Goldstein and Beall, 72.](#)
- <sup>[184]</sup> [Laidler and Laidler, 65.](#)
- <sup>[185]</sup> [BirdLife International 2012 \(d\).](#)
- <sup>[186]</sup> [Dement'ev et al, 276.](#)
- <sup>[187]</sup> [Meyburg and Meyburg, 104.](#)
- <sup>[188]</sup> [Landon, 426, and Dement'ev et al, 288.](#)
- <sup>[189]</sup> [Mundy et al, 212.](#)
- <sup>[190]</sup> [Duncan, 144.](#)
- <sup>[191]</sup> [Meyburg and Meyburg, 102.](#)
- <sup>[192]</sup> [Dement'ev et al, 284.](#)
- <sup>[193]</sup> [Meyburg and Meyburg, 102.](#)
- <sup>[194]</sup> [Fischer, 396.](#)



- <sup>[195]</sup> [Ye, 51.](#)
- <sup>[196]</sup> [Hong, 71-72.](#)
- <sup>[197]</sup> [Ye, 52.](#)
- <sup>[198]</sup> [Meyburg and Meyburg, 102.](#)
- <sup>[199]</sup> [Gavashelishvili, 16-17,](#) and [Cramp et al, 92-93.](#)
- <sup>[200]</sup> [Rasmussen and Anderton, 91.](#)
- <sup>[201]</sup> [Fischer, 394.](#)
- <sup>[202]</sup> [Meyburg and Meyburg, 103.](#)
- <sup>[203]</sup> [Ali 1949, 161.](#)
- <sup>[204]</sup> [Dement'ev et al, 293.](#)
- <sup>[205]</sup> [Mirza trans Phillott, 27.](#)
- <sup>[206]</sup> [Lydekker et al 1897, 253.](#)
- <sup>[207]</sup> [Landon, 425-26.](#)
- <sup>[208]</sup> [Harting, 335.](#)
- <sup>[209]</sup> [Harting, 334.](#)
- <sup>[210]</sup> [Baskin and Danell, 215, 309.](#)
- <sup>[211]</sup> [Dresser, 406,](#) and [Dement'ev et al, 292.](#)
- <sup>[212]</sup> [Dresser, 408.](#)
- <sup>[213]</sup> [Mirza trans Phillott, 27.](#)
- <sup>[214]</sup> [Duncan, 144.](#)
- <sup>[215]</sup> [Dresser, 409.](#)
- <sup>[216]</sup> [Dresser, 409.](#)
- <sup>[217]</sup> [Patrikeev, 103.](#)
- <sup>[218]</sup> [Dement'ev et al, 290, 292.](#)
- <sup>[219]</sup> [Schaller 1972, 384.](#)
- <sup>[220]</sup> [Knystautas, 153.](#)
- <sup>[221]</sup> [Andrews et al, 156.](#)
- <sup>[222]</sup> [Patrikeev, 103.](#)
- <sup>[223]</sup> [Dement'ev et al, 293.](#)
- <sup>[224]</sup> [Dement'ev et al, 293.](#)
- <sup>[225]</sup> [Duncan, 144.](#)
- <sup>[226]</sup> Including one supposedly fatal attack involving a Golden Eagle; see [Dement'ev et al, 298.](#)
- <sup>[227]</sup> [Hamilton 1944, 111-12.](#)
- <sup>[228]</sup> [Goldstein and Beall, 60.](#)
- <sup>[229]</sup> [Goldstein and Beall, 61.](#)
- <sup>[230]</sup> [Bates and Lowther, 252.](#)
- <sup>[231]</sup> [Bunker, Wyatt, and Sun, 16.](#)
- <sup>[232]</sup> [Goldstein and Beall, 117.](#)
- <sup>[233]</sup> [Ali and Ripley, 303.](#)
- <sup>[234]</sup> [Huc and Gabet trans Hazlitt, Vol. II, 151.](#)
- <sup>[235]</sup> [Huc and Gabet trans Hazlitt, Vol. II, 156.](#)
- <sup>[236]</sup> [Holmberg, 505-06.](#)
- <sup>[237]</sup> [Curtin, 47-48.](#)
- <sup>[238]</sup> [Curtin, 100.](#)
- <sup>[239]</sup> [Macpherson, 180-81.](#)
- <sup>[240]</sup> [Knystautas, 153.](#) The author identifies the egg in this folktale as that of a Lammergeier, but the identification of the puppy as “Kumaik” and the description of its eyes as “pale” (that is, whitish) makes it clear that the legend refers to the Himalayan Griffon.

<sup>[241]</sup> [Dement'ev et al, 286.](#)

<sup>[242]</sup> There is at least one recorded case of a Black Bear seen sitting in a Bald Eagle's nest, comparable in size to that of a Monk Vulture, which would give the Kirghiz legend some credence. (However, the bear was thought to have climbed into the nest in search of a meal of eagle chicks or eggs, not a snooze.)

<sup>[243]</sup> [Rockhill 1891, 287.](#)

<sup>[244]</sup> [Briggs, 29.](#)

- [245] [Zhou trans Harris, 66-67.](#)
- [246] [Tully, 11.](#)
- [247] [Matsunami, 5-6.](#)
- [248] [Choisy trans Smithies, 241.](#)
- [249] [Loubere, 38.](#)
- [250] [Hamilton 1718, 36.](#)
- [251] [Bacon, 160.](#)
- [252] [Sommerville, 138-140.](#)
- [253] [Sommerville, 142-43.](#)
- [254] [Sommerville, 143-44.](#)
- [255] [Gyldenstolpe, 132.](#)
- [256] [Matsunami, 62-63.](#)
- [257] [Atwood, 189-91.](#)
- [258] [Huc and Gabet trans. Hazlitt Vol. I, 92.](#)
- [259] [Habenstein and Lamers, 90-92.](#)
- [260] [Huc and Gabet trans. Hazlitt Vol. I, 92.](#)
- [261] [Rockhill, 152.](#)
- [262] [Atwood, 191.](#)
- [263] [Matsunami, 44-45.](#)
- [264] [Matsunami, 14-15.](#)
- [265] [Bellezza 2008, 113.](#)
- [266] [Matsunami, 49.](#)
- [267] [Ronge trans Vogliotti, 11.](#)
- [268] [Ronge trans Vogliotti, 5.](#)
- [269] [Hastings, Selbie, and Gray, 510.](#)
- [270] [Ronge trans Vogliotti, 4-7.](#)
- [271] [Hastings, Selbie, and Gray, 510.](#)
- [272] [Xin Lu et al, 169.](#)
- [273] [Powers, 307-08, and Peacock, 122-24.](#)
- [274] [Mullin, 51.](#)
- [275] [Ye, 51.](#)
- [276] [Ye, 56.](#)
- [277] [Schüz and König, 466-67, and Edgar, 54-55.](#)
- [278] [Hastings, Selbie, and Gray, Vol. IV, 510.](#)
- [279] [Orden and Paklina, 61-67.](#)
- [280] [Edgar, 54-55.](#)
- [281] [Ronge trans Vogliotti, 8.](#)
- [282] [Hedin, 371-72.](#)
- [283] [Ronge trans Vogliotti, 5.](#)
- [284] [Beer 1999, 85.](#)
- [285] [Faison.](#)
- [286] [Powers, 307-08, and Peacock, 122-24.](#)
- [287] [Iverson, 476.](#)
- [288] [Iverson, 476.](#)
- [289] [Peacock, 124-25.](#)
- [290] [Klieger, 67.](#)
- [291] [Shabkar trans Ricard, 446.](#)
- [292] [Xin Lu et al, 166-67.](#)
- [293] [Bauer, 38.](#)
- [294] [Matsunami, 4.](#)
- [295] [White 1909, 181.](#)
- [296] [Johnston 1908, 224-25.](#)
- [297] [Johnston 1908, 232-33.](#)
- [298] [James \(editor\) and The Chinese Academy of Social Sciences, 1274.](#)

- <sup>[299]</sup> [Stübel trans Schutze, 44-45.](#)
- <sup>[300]</sup> [James \(editor\) and The Chinese Academy of Social Sciences, 1274.](#)
- <sup>[301]</sup> [Ye, 56.](#) Given the less-than-transparent situation in China, it's difficult to determine whether these rituals still persist today.
- <sup>[302]</sup> [Wylie, 231-33.](#)
- <sup>[303]</sup> [Bellezza 2008, 113,](#) and [Martin 1996, 355-57.](#)
- <sup>[304]</sup> Namely that the countless differences between the two rituals and the relatively late arrival of the Parsis in the region argue against it, as does the lack of any obvious way that a deeply private tradition practiced by a small and sedentary minority of people in lowland India could have been adopted by the notoriously proud and isolationist inhabitants of the Tibetan plateau.
- <sup>[305]</sup> [Thubron, 150.](#)
- <sup>[306]</sup> Quoted in [Martin 1996, 355.](#)
- <sup>[307]</sup> For a detailed examination of the similarities and differences between the rituals, see [Martin 1996, 357-59.](#)
- <sup>[308]</sup> [Huc and Gabet trans. Hazlitt Vol. II, 94-95.](#)
- <sup>[309]</sup> [Edgar, 54-55.](#)
- <sup>[310]</sup> However, since Tibetan Buddhists often accord other types of funerals to highly regarded persons, it may be that even they are reluctant to apply this standard to everyone.
- <sup>[311]</sup> [Rockhill 1891, 287-88.](#)
- <sup>[312]</sup> [Hedin, 373.](#)
- <sup>[313]</sup> [White 1909, 181.](#)
- <sup>[314]</sup> [Powers, 309.](#)
- <sup>[315]</sup> [Beer 1999, 250.](#)
- <sup>[316]</sup> [Ronge trans Vogliotti, 7.](#)
- <sup>[317]</sup> [Shabkar trans Ricard, 464.](#)
- <sup>[318]</sup> [Mullin, 52.](#)
- <sup>[319]</sup> [Shabkar trans Ricard, 324.](#)
- <sup>[320]</sup> [Shakya, 98.](#)
- <sup>[321]</sup> [Harrer trans Osers, 50-51,](#) and [Shakya, 320-21.](#)
- <sup>[322]</sup> [Shakya, 348.](#)
- <sup>[323]</sup> [Orden and Paklina, 61-67.](#)
- <sup>[324]</sup> [Martin 1996, 355-56.](#)
- <sup>[325]</sup> [Smith, Jr., 135-36,](#) and [Martin 1996, 356.](#)
- <sup>[326]</sup> [Smith, Jr., 170.](#)
- <sup>[327]</sup> [Smith, Jr., 226.](#)
- <sup>[328]</sup> [Rockhill, 95.](#)
- <sup>[329]</sup> [Faison.](#)
- <sup>[330]</sup> [Faison.](#)
- <sup>[331]</sup> [Xinhuanet 2006.](#)
- <sup>[332]</sup> [Orden and Paklina, 61-67.](#)
- <sup>[333]</sup> [Ronge trans Vogliotti, 3-12.](#)
- <sup>[334]</sup> [Somervill-Large, 108.](#)
- <sup>[335]</sup> [Orden and Paklina, 61-67.](#)
- <sup>[336]</sup> [Tatlow.](#)
- <sup>[337]</sup> [Orden and Paklina, 61-67.](#)
- <sup>[338]</sup> [Xinhuanet 2002.](#)
- <sup>[339]</sup> [Xin Lu et al, 169.](#)
- <sup>[340]</sup> [Xin Lu et al, 172.](#)
- <sup>[341]</sup> [Boyce, 170.](#)
- <sup>[342]</sup> [Hartz, 50-53.](#)
- <sup>[343]</sup> [Godrej and Mistree, 335.](#)
- <sup>[344]</sup> [Boyce, 209.](#)
- <sup>[345]</sup> [Godrej and Mistree, 326.](#)
- <sup>[346]</sup> [Habenstein and Lamers, 184.](#)
- <sup>[347]</sup> [Hartz, 103-05.](#)



<sup>[348]</sup> [Godrej and Mistree, 334.](#)

<sup>[349]</sup> [Munshi, 62.](#)

<sup>[350]</sup> [Munshi, 57.](#)

<sup>[351]</sup> [Godrej and Mistree, 335.](#)

<sup>[352]</sup> [Munshi, 57-60.](#)

<sup>[353]</sup> [Lebar, Hickey, and Musgrave, 72.](#)

<sup>[354]</sup> [Lebar, Hickey, and Musgrave, 132.](#)

<sup>[355]</sup> [Lebar, Hickey, and Musgrave, 266.](#)

<sup>[356]</sup> [Rockhill 1891, 286-87, and Hastings, Selbie, and Gray, Vol. IV, 511.](#)

<sup>[357]</sup> And, as we'll see in [Chapter 12](#), the Parsis who wish the beholdings to continue have proposed to take the ritual to its next (and probably final) stage, by keeping and breeding vultures in captivity for the express purpose of using them in the ritual.

<sup>[358]</sup> [Lydekker et al 1897, 259.](#)

<sup>[359]</sup> [Kipling ed Pinney, 4.](#)

<sup>[360]</sup> [Godrej and Mistree, 428.](#)

<sup>[361]</sup> [Hastings, Selbie, and Gray, Vol. IV, 420.](#)

<sup>[362]</sup> [Habenstein and Lamers, 184.](#)

<sup>[363]</sup> One wonders what the British-era Parsis made of all the strange, pale people who insisted on following their funeral processions and gawking at their *dokhmas*. The effect would be not unlike a troupe of Inuit parading into a London funeral home and demanding to watch a cremation in progress.

<sup>[364]</sup> [Boyce, 170.](#)

<sup>[365]</sup> [Twain, 53-54.](#)

<sup>[366]</sup> [Twain, 58.](#)

<sup>[367]</sup> [Mundy et al, 350.](#)

<sup>[368]</sup> [TowerOfSilence.org.](#)

<sup>[369]</sup> [Iverson, 473.](#)

<sup>[370]</sup> [Iverson, 474.](#)

<sup>[371]</sup> [Cesaresco, 124.](#)

<sup>[372]</sup> [Gaer, 96-116.](#)

## Endnotes - Chapter 5

- <sup>[1]</sup> [Laband, 76.](#)
- <sup>[2]</sup> [Laband, 88.](#)
- <sup>[3]</sup> [Mundy et al, 167-68.](#)
- <sup>[4]</sup> [Chapman 1921, 367-69.](#)
- <sup>[5]</sup> [Lewis-Williams, 57.](#)
- <sup>[6]</sup> [Stanford and Bunn \(eds\), 129.](#)
- <sup>[7]</sup> [Stanford and Bunn \(eds\), 200.](#)
- <sup>[8]</sup> [Stanford and Bunn \(eds\), 201.](#)
- <sup>[9]</sup> [Stanford and Bunn \(eds\), 201.](#)
- <sup>[10]</sup> [Mundy et al, 344.](#)
- <sup>[11]</sup> [Lee and Devore \(eds\), 112.](#)
- <sup>[12]</sup> [Burton 1865, 231.](#)
- <sup>[13]</sup> [Berry and Spears \(eds\), 175-76.](#)
- <sup>[14]</sup> [Schoeman, 91-92.](#)
- <sup>[15]</sup> [Chapman 1921, 219.](#)
- <sup>[16]</sup> [Mundy et al, 330.](#)
- <sup>[17]</sup> [Lewis-Williams, 74.](#)
- <sup>[18]</sup> [Lewis-Williams, 190.](#)
- <sup>[19]</sup> [Greaves, 92-96.](#)
- <sup>[20]</sup> [Houston 1979, 265.](#)
- <sup>[21]</sup> [Laband, 22.](#)
- <sup>[22]</sup> [Laband, 50.](#)
- <sup>[23]</sup> [Laband, 49.](#)
- <sup>[24]</sup> [Laband, 55.](#)
- <sup>[25]</sup> [Laband, 71.](#)
- <sup>[26]</sup> [Mundy et al, 342.](#)
- <sup>[27]</sup> [Wood 1874, 454.](#)
- <sup>[28]</sup> [Ramseyer et al, 164-65.](#)
- <sup>[29]</sup> [Spencer, 240.](#)
- <sup>[30]</sup> [Rattray, 173-75.](#)
- <sup>[31]</sup> [Frazer i, 151.](#)
- <sup>[32]</sup> [Mundy et al, 346.](#)
- <sup>[33]</sup> [McNeil, 53.](#)
- <sup>[34]</sup> [Greaves, 96-97.](#)

The oddest aspect of this story is that it *seems* to strongly suggest the tortoise-dropping behavior of the Lammergeier. Birds of that species dwelling in northern Africa feed heavily upon tortoises, which are carried aloft, dropped, and cracked open in much the same manner as other Lammergeiers break bones. However, there are no Lammergeiers anywhere near Barotse, nor elsewhere in Central Africa, and it remains unclear if the story is actually patterned after Lammergeier behavior or if it's a creature of wholesale invention.

- <sup>[35]</sup> [Roberts 1995, 48-49.](#)
- <sup>[36]</sup> [Bree, 4.](#)
- <sup>[37]</sup> [Laybourne, 461-62.](#)

<sup>[38]</sup> This record has been disputed by some authors, mainly because the Rüppell's Griffon is not known to occur in Ivory Coast near the city of Abidjan, where the strike occurred. But with the wind speeds at that altitude, and considering that Ivory Coast is not much bigger than Arizona, does it really matter?

- <sup>[39]</sup> [Berry and Spears \(eds\), 183-86.](#)
- <sup>[40]</sup> [Herskovits, 138-39.](#)
- <sup>[41]</sup> [Herskovits, 116.](#)
- <sup>[42]</sup> [Herskovits, 140.](#)
- <sup>[43]</sup> [Bascom, 187, 471.](#)
- <sup>[44]</sup> [Burton 1865, 326.](#)
- <sup>[45]</sup> [Burton 1865, 331.](#)

- [46] [Evans-Pritchard, 125-26.](#)
- [47] [Evans-Pritchard, 88-89.](#)
- [48] [Roberts 1995, 93.](#)
- [49] [Govender, 29.](#)
- [50] [Mundy et al, 346-47.](#)
- [51] [Virani et al, 746-47.](#)
- [52] [BirdLife International 2012 \(a\) and \(b\).](#)
- [53] [Moore and Sanders, 73-74.](#)
- [54] [Mundy et al, 341-42.](#)
- [55] [Mundy et al, 181.](#)
- [56] [Brown, Urban, and Newman, 327.](#)
- [57] [Mundy et al, 129.](#)
- [58] [Mundy et al, 344.](#)
- [59] [Campbell 2009, 346.](#)
- [60] [Mundy et al, 147.](#)
- [61] [Brown, Urban, and Newman, 325.](#)
- [62] [Bannerman 1953, 231.](#)
- [63] [Mundy et al, 141.](#)
- [64] [Mundy et al, 273-76.](#)
- [65] [Rattray, 13-15.](#)
- [66] [Mundy et al, 345.](#)
- [67] [Campbell 2009, 342.](#)
- [68] [Brown, Urban, and Newman, 324.](#)
- [69] [Mundy et al, 136-38.](#)
- [70] [Curry-Lindahl, 54.](#)
- [71] [Brown, Urban, and Newman, 319.](#)
- [72] [Brown, Urban, and Newman, 320.](#)
- [73] [Brown, Urban, and Newman, 330.](#)

[74] [Bree, 14.](#) The authenticity of many of the events that Bruce describes in *Travels* has been challenged, and it's only fair to warn the reader that many people would consider his description of this incident an exaggeration, if not an outright fabrication. I'm willing to include it here because, even if exaggerated, it does illustrate the extent to which the east African vultures have become used to humans.

- [75] [Ewer, 203-04.](#)
- [76] [Kruuk 1972, 144.](#)
- [77] [Verner, 386.](#)
- [78] [Bannerman 1953, 232.](#)
- [79] [Dresser, 394.](#)
- [80] [Mundy et al, 192.](#)
- [81] [Mercer, 33.](#)
- [82] [Mercer, 33.](#) The name was also given to a plant: *tunera de guirre*, the “vulture’s cactus.”
- [83] [Dresser, 395,](#) and [Bannerman 1922, 232.](#)
- [84] [Bannerman 1922, 163-64.](#)
- [85] [Mundy et al, 187.](#)
- [86] [Tarboton, Pickford, and Pickford, 30.](#)
- [87] [Brown, Urban, and Newman, 339.](#)
- [88] [Petrides, 105.](#)
- [89] [Bannerman 1953, 230.](#)
- [90] [Mundy et al, 178.](#)
- [91] [Mundy et al, 177.](#)
- [92] [Finnegan, 338-40.](#)
- [93] [Houston 1996, 328.](#)
- [94] [Buffon, 114.](#)
- [95] [Mundy et al, 87.](#)
- [96] [Mundy 2000, 153.](#)

- [<sup>\[97\]</sup> Mundy et al, 272.](#)
- [<sup>\[98\]</sup> Mundy et al, 363.](#)
- [<sup>\[99\]</sup> Brown 1971, 272.](#)
- [<sup>\[100\]</sup> Brown 1971, 271.](#)
- [<sup>\[101\]</sup> Mundy et al, 422-23.](#)
- [<sup>\[102\]</sup> Doke, 205.](#)
- [<sup>\[103\]</sup> Brown 1991, 319.](#)
- [<sup>\[104\]</sup> Brown 1991, 327.](#)
- [<sup>\[105\]</sup> Mundy et al, 220.](#)
- [<sup>\[106\]</sup> Blier, 49.](#)
- [<sup>\[107\]</sup> Burton 1865, 359.](#)
- [<sup>\[108\]</sup> Johnston 1906, 774.](#)
- [<sup>\[109\]</sup> Burton 1865, 115.](#)
- [<sup>\[110\]</sup> Mundy 2000, 157.](#)
- [<sup>\[111\]</sup> Bascom, 517.](#)
- [<sup>\[112\]</sup> Mundy et al, 225.](#)
- [<sup>\[113\]</sup> Mundy et al, 347.](#)
- [<sup>\[114\]</sup> Bree, 4.](#)
- [<sup>\[115\]</sup> Dresser, 378.](#)
- [<sup>\[116\]</sup> Lee 1979, 221.](#)
- [<sup>\[117\]</sup> Mundy et al, 347.](#)
- [<sup>\[118\]</sup> Holman, 3-9.](#)
- [<sup>\[119\]</sup> Moore, 204-05.](#)
- [<sup>\[120\]</sup> Brown 1971, 270.](#)
- [<sup>\[121\]</sup> Andersson, 269-69.](#)
- [<sup>\[122\]</sup> Boswall, 152, and Lawick-Goodall 1970, 199-201.](#)
- [<sup>\[123\]</sup> Andersson, 268-69.](#)
- [<sup>\[124\]</sup> Lawick-Goodall and Lawick-Goodall 1968, 630-641.](#)
- [<sup>\[125\]</sup> Cramp et al, 67.](#)
- [<sup>\[126\]</sup> Thouless et al, 12.](#)
- [<sup>\[127\]</sup> Thouless et al, 14.](#)
- [<sup>\[128\]</sup> Thouless et al, 11.](#)
- [<sup>\[129\]</sup> Thouless et al, 14.](#)
- [<sup>\[130\]</sup> Auffenberg \(b\), 490-91.](#)
- [<sup>\[131\]</sup> Mundy et al, 194.](#)
- [<sup>\[132\]</sup> Cramp et al, 61.](#)
- [<sup>\[133\]</sup> Boswall, 152.](#)
- [<sup>\[134\]</sup> Lawick-Goodall and Lawick-Goodall 1966, 1468-69.](#)
- [<sup>\[135\]</sup> Thouless et al, 14.](#)
- [<sup>\[136\]</sup> Thouless et al, 13.](#)



## Endnotes – Chapter 6

<sup>[1]</sup> [Blackwater et al, 5-9, and McNamee, 140.](#)

<sup>[2]</sup> [Snyder and Snyder 2000, 30.](#)

<sup>[3]</sup> [Bates, Hamber, and Lee, 45.](#)

<sup>[4]</sup> [Smith and Easton, 31.](#)

<sup>[5]</sup> [Emslie, 768.](#)

<sup>[6]</sup> [Miller 1957, 59-63.](#)

<sup>[7]</sup> [Finley 1908 \(a\), 10.](#)

<sup>[8]</sup> [Simons, 487-88.](#)

<sup>[9]</sup> [McMillan, 173.](#)

<sup>[10]</sup> [Rea 2007, 95.](#)

<sup>[11]</sup> [Rea 2007, 100.](#)

<sup>[12]</sup> [Bruchac, 61-63.](#)

<sup>[13]</sup> [Brown and Owens, 30.](#)

<sup>[14]</sup> [Brown and Owens, 19-20.](#)

<sup>[15]</sup> [Montejo trans Kaufman, 29-30.](#) This story is very similar to the various Old World biblical tales of Noah sending out the raven after the deluge, and as such it is probably at least partly of post-Columbian provenance. However, documents of the stories told by the 15th-century Aztecs show that deluge stories also existed in the pre-Columbian Americas, and this was likely one of them, warranting its inclusion here.

<sup>[16]</sup> [Malotki, 154-59.](#)

<sup>[17]</sup> [Bierhorst 1988, 32.](#)

<sup>[18]</sup> [Levi-Strauss, 201.](#)

<sup>[19]</sup> [Fabian, 116.](#)

<sup>[20]</sup> [Tyler, 264-65.](#)

<sup>[21]</sup> [Bowes, 13-14.](#)

<sup>[22]</sup> [Levi-Strauss, 178-79.](#)

<sup>[23]</sup> [Rea 2007, 99-100.](#)

<sup>[24]</sup> [Merriam \(ed\), 227-228.](#)

<sup>[25]</sup> I meant that metaphorically, of course; you can't really ask them, because they no longer really exist.

<sup>[26]</sup> [Abel-Vidor et al, 102-03.](#)

<sup>[27]</sup> [Abel-Vidor et al, 221,](#) and [Stone 1977, 123.](#)

<sup>[28]</sup> [Benson, 89-90.](#)

<sup>[29]</sup> [Alexander, 199.](#)

<sup>[30]</sup> [Alexander, 198.](#)

<sup>[31]</sup> [Snyder and Snyder 2000, 38.](#)

<sup>[32]</sup> [Miller 1997, 161.](#)

<sup>[33]</sup> [Miller 1997, 150.](#)

<sup>[34]</sup> [Miller 1997, 164-65.](#)

<sup>[35]</sup> [Miller 1997, 209.](#)

<sup>[36]</sup> [Rea 2007, 96.](#)

<sup>[37]</sup> [Leach, 246, 266.](#)

<sup>[38]</sup> [Snyder and Snyder 2000, 38.](#)

<sup>[39]</sup> [Opler, 47.](#)

<sup>[40]</sup> [Blackburn \(editor\), 278.](#)

<sup>[41]</sup> [Blackburn \(editor\), 277.](#)

<sup>[42]</sup> [Dorsey 1997, 103.](#)

<sup>[43]</sup> [Goetz and Morley trans Recinos, 151-52.](#)

<sup>[44]</sup> [Bierhorst 1988, 70-71.](#)

<sup>[45]</sup> [Skinner and Satterlee, 292-93.](#)

<sup>[46]</sup> [Ventur, 228, 252,](#) and [Bierhorst 1976 \(editor\), 299-300.](#)

<sup>[47]</sup> [Ventur, 237-38.](#)

<sup>[48]</sup> [Ventur, 254.](#)

<sup>[49]</sup> Either the Lesser Yellow-headed Vulture or a local subspecies of the Turkey Vulture, *Cathartes aura ruficollis*; it's difficult to be certain which.

<sup>[50]</sup> [Fabian, 21-22.](#)

<sup>[51]</sup> [Dorsey 1995, 298-99.](#)

<sup>[52]</sup> [Montejo trans Kaufman, 52-54.](#)

<sup>[53]</sup> [Urton \(editor\), 262.](#)

<sup>[54]</sup> [Abercrombie, 343.](#)

<sup>[55]</sup> [Bierhorst 1988, 122.](#)

<sup>[56]</sup> [Bierhorst 1988, 234.](#)

<sup>[57]</sup> [Blackwater et al, 169-70.](#)

<sup>[58]</sup> [Rea 2007, 96-97.](#)

<sup>[59]</sup> [Rea 2007, 63.](#)

<sup>[60]</sup> [Rea 2007, 96-97.](#)

<sup>[61]</sup> [Rea 2007, 95.](#)

<sup>[62]</sup> [Montejo trans Kaufman, 89-93.](#)

<sup>[63]</sup> [Bierhorst 2002, 310-13.](#)

<sup>[64]</sup> [Jerome A. Jackson Palmer \(ed.\) Vol IV, 34.](#)

<sup>[65]</sup> [Stone 1962, 64.](#)

<sup>[66]</sup> [Stone 1962, 70.](#)

<sup>[67]</sup> [Benson, 92.](#)

<sup>[68]</sup> [Bates, Hamber, and Lee, 42-43.](#)

<sup>[69]</sup> [Bates, Hamber, and Lee, 43.](#)

<sup>[70]</sup> [Miller 1957, 60.](#)

<sup>[71]</sup> [Bates, Hamber, and Lee, 43.](#)

<sup>[72]</sup> [Bates, Hamber, and Lee, 45.](#)

<sup>[73]</sup> [Levi-Strauss, 326.](#)

<sup>[74]</sup> [Alexander, 273-74.](#)

<sup>[75]</sup> [Wilbert, 181-82.](#)

<sup>[76]</sup> [Wilbert, 118-120, 181-82, 315-18, and Bierhorst 1988, 71-72.](#)

<sup>[77]</sup> [Lubin, 356-62.](#)

<sup>[78]</sup> [Wilbert, 343-46.](#)

<sup>[79]</sup> [Bierhorst 2002, 320-22.](#) This story is also told with hummingbirds instead of parrots; see [McGahan 2011, 28.](#)

<sup>[80]</sup> [Sawyer and Sunday, 10.](#)

<sup>[81]</sup> [Rozzi et al, 203.](#)

<sup>[82]</sup> [Paul, 85-87.](#)

<sup>[83]</sup> [Frazer ii, 370.](#)

<sup>[84]</sup> [McGahan, 28.](#)

<sup>[85]</sup> [Alexander, 228-29.](#)

<sup>[86]</sup> [Bastien, 61.](#)

<sup>[87]</sup> [Schaffer, 35-36.](#)

<sup>[88]</sup> [Schaffer, 35-36.](#)

<sup>[89]</sup> [Schaffer, 36-38.](#)

<sup>[90]</sup> [Greider, 9.](#)

<sup>[91]</sup> [Greider, 117.](#)

<sup>[92]</sup> [Greider, 147-51.](#)

<sup>[93]</sup> [Donnan and McClelland, 5-7.](#)

<sup>[94]</sup> [Bourget, 118-19.](#)

<sup>[95]</sup> [Donnan and McClelland, 12.](#)

<sup>[96]</sup> [Schaffer, 37-38.](#)

<sup>[97]</sup> [Bourget, 201-03.](#)

<sup>[98]</sup> [Yarrow, 54.](#)

<sup>[99]</sup> [Yarrow, 45.](#) This still begs the question of where the Sioux found lumber to build a scaffold *with* if trees were so scarce.

<sup>[100]</sup> [Yarrow, 51.](#)

<sup>[101]</sup> [Yarrow, 60-63.](#)

<sup>[102]</sup> [Yarrow, 9.](#)

<sup>[103]</sup> [Grinnell, Grinnell, and Tuell, Vol. 2, 163.](#)

<sup>[104]</sup> [Jerome A. Jackson in Palmer \(ed.\) Vol. IV, 41.](#)

<sup>[85]</sup> With a couple borderline exceptions that involved only the bodies of warriors killed in battle, which will be dealt with [in Chapter 10.](#)

<sup>[105]</sup> Amerindian discoveries of pterodactyl and dinosaur fossils undoubtedly contributed to the Thunderbird legends, and in some areas may have contributed more to the legend than any living birds did. Readers interested in the paleontological side of the story are steered to Adrienne Mayor's book *Fossil Legends of the First Americans*.

<sup>[106]</sup> [Ralph S. Palmer in Palmer \(ed.\) Vol. V, 192-93.](#)

<sup>[107]</sup> [Rea 2007, 100.](#)

<sup>[108]</sup> [Rea 2007, 96-98.](#)

<sup>[109]</sup> [Rea 2007, 63.](#)

<sup>[110]</sup> [Rea 2007, 96.](#)

<sup>[111]</sup> [Bowes, 14.](#)

<sup>[112]</sup> [Bunson and Bunson, 274, 291.](#)

<sup>[113]</sup> [Benson, 91.](#)

<sup>[114]</sup> [Alexander, 72.](#)

<sup>[115]</sup> [Tyler, 268.](#)

<sup>[116]</sup> [Tyler, 269-70.](#)

<sup>[117]</sup> [Perera and Bruce, 134.](#)

<sup>[118]</sup> [Miller, Martin, and Berrin, 90-91.](#) Unfortunately, no example of these headdresses is known to have survived.

However, you may feel free to make your own.

<sup>[119]</sup> [Grossman, Grossman, and Hamlet, 47.](#)

<sup>[120]</sup> [Thompson 1970, 337.](#)

<sup>[121]</sup> [Benson, 91-92.](#)

<sup>[122]</sup> [Stone 1962, 190-91.](#)

<sup>[123]</sup> [Grossman, Grossman, and Hamlet, 46-47.](#)

<sup>[124]</sup> [Bowes, 14.](#)

<sup>[125]</sup> [Fought, 180-83.](#)

<sup>[126]</sup> [Bowes, 14.](#)

<sup>[127]</sup> [Werness, 19.](#)

<sup>[128]</sup> [Levi-Strauss, 161.](#)

## Endnotes – Chapter 7

<sup>[1]</sup> [Schüz and König, 467.](#)

<sup>[2]</sup> [Voous, 50.](#)

<sup>[3]</sup> [Dresser, 374, 384.](#)

<sup>[4]</sup> [Dresser, 373, 383.](#)

<sup>[5]</sup> [Dresser, 374.](#)

<sup>[6]</sup> [Dresser, 408.](#)

<sup>[7]</sup> [Dement'ev et al, 292.](#)

<sup>[8]</sup> [Ferguson-Lees and Christie, 413.](#)

<sup>[9]</sup> [Gimbutas 1987, 506.](#)

<sup>[10]</sup> [Johnson, 96, and Gimbutas 1999, 173.](#)

<sup>[11]</sup> [Gimbutas 1989, 300.](#)

<sup>[12]</sup> [McIntosh, 276-77.](#)

<sup>[13]</sup> [Gimbutas 1987, 511.](#) Interestingly, some of the modern fictional witches, such as Broom Hilda and Witchiepoo, have pet vultures.

<sup>[14]</sup> [Gimbutas 1999, 173.](#)

<sup>[15]</sup> [Gimbutas 1989, 190.](#)

<sup>[16]</sup> [Shipley, xi.](#)

<sup>[17]</sup> [Shipley, 431.](#)

<sup>[18]</sup> [Pollard, 155.](#)

<sup>[19]</sup> [Pollard, 157.](#)

<sup>[20]</sup> [Celorla, 120.](#)

<sup>[21]</sup> [Gimbutas 1999, 144.](#)

<sup>[22]</sup> [Gimbutas 1999, 158.](#)

<sup>[23]</sup> [Brown 2002, 244.](#)

<sup>[24]</sup> Not to be confused with the better-known *Metamorphoses* written by Ovid.

<sup>[25]</sup> [Celorla, 54.](#)

<sup>[26]</sup> [Mundy et al, 164.](#)

<sup>[27]</sup> [Shipley, 271, and Mundy et al, 184.](#)

<sup>[28]</sup> [Pollard, 190-91.](#)

<sup>[29]</sup> [Jones 1995, 448.](#)

<sup>[30]</sup> [Graves, 148-49.](#)

<sup>[31]</sup> [Aelian trans Scholfield, Book II, 46.](#)

<sup>[32]</sup> Book VI, Chapter 5.

<sup>[33]</sup> Book IX, Chapter 11.

<sup>[34]</sup> [Pollard, 79.](#)

<sup>[35]</sup> Richard Meinertzhagen, a once-highly regarded ornithologist who we'll meet about 2,500 years later, denied until his dying day that Lammergeiers deliberately dropped bones at all.

<sup>[36]</sup> [Macpherson, 180-81.](#)

<sup>[37]</sup> [Pollard, 187.](#)

<sup>[38]</sup> Book IX, Chapter 34.

<sup>[39]</sup> [Aykurt and Kiraç, 140.](#)

<sup>[40]</sup> [Albertus trans Scanlan, 191.](#)

<sup>[41]</sup> [Blanc and Blanc.](#)

<sup>[42]</sup> [Durant and Durant, 63-64.](#)

<sup>[43]</sup> [Plutarch trans Dryden.](#)

<sup>[44]</sup> Book X, Chapter VII.

<sup>[45]</sup> Book X, Chapter III.

<sup>[46]</sup> [Wiseman, 207.](#)

<sup>[47]</sup> [Gimbutas 1987, 506.](#)

<sup>[48]</sup> [Vries, 153.](#)

<sup>[49]</sup> [Celorla, 55.](#)



<sup>[50]</sup> [Gimbutas 1999, 169.](#)

<sup>[51]</sup> [Aelian tras. Scholfield, Book II, 315.](#)

<sup>[52]</sup> An earlier Roman historian named [Titus Livius suggested as much](#), writing that he himself was "not indisposed to follow the opinion of those, who are inclined to believe that [the custom] was from the neighbouring Etruscans," who elected their own king from among the leaders of twelve states, each of which would then assign one lictor to the new ruler.

<sup>[53]</sup> [Durant and Durant, 63-64.](#)

<sup>[54]</sup> To whit: "The founders of the Chilean Republic chose the Condor for the national coat of arms as a symbol of strength and gallantry, but in point of fact ["fact" meaning "opinion," apparently] it does not deserve this distinction, being by nature timid and cowardly and notably lacking in the qualities of nobility, arrogance and dashing courage which we rightly associate with the falcons and eagles." ([Johnson, \*Birds of Chile\*, 235.](#)) At least he was right about the "arrogance."

<sup>[55]</sup> [Lucian trans Harmon, 285-91.](#)

<sup>[56]</sup> Volume II, Book IV, LXIII.

<sup>[57]</sup> [Hengel, 54.](#)

<sup>[58]</sup> [Martin 1914, 221.](#)

<sup>[58]</sup> [Dresser, 379,](#) and [Lodge, 20.](#)

<sup>[59]</sup> Contrary to popular belief, the *bestiarii* were usually victorious in these fights; it was considered quite noteworthy for any animal to survive for more than a couple of matches against the highly trained fighters.

<sup>[60]</sup> [Brosimmer, 41-5.](#)

<sup>[61]</sup> [Celoria, 77.](#)

<sup>[62]</sup> [Gubernatis, 199.](#)

<sup>[63]</sup> [Frederick II trans Wood and Fyfe, 6.](#)

<sup>[64]</sup> [Clark \(ed and trans\) 1992, 143-47.](#) The examples are even more ridiculous than you'd expect.

<sup>[65]</sup> [Shipley, 324.](#)

<sup>[66]</sup> [Frederick II trans Wood and Fyfe, 20-21.](#)

<sup>[67]</sup> [Frederick II trans Wood and Fyfe, 108.](#)

<sup>[68]</sup> [Ridgway.](#)

<sup>[69]</sup> [Bree, 59.](#)

<sup>[70]</sup> [Plutarch trans Dryden.](#)

<sup>[71]</sup> For example, [Glasier 10-18](#), [Grossman, Grossman, and Hamlet, 74-83](#), and [William A. Burnham in Newton and Olsen \(eds\), 170-187.](#)

<sup>[72]</sup> Some of these less favored raptors, including Red and Black Kites and Greater Spotted Eagles, were actually hunted by falconers wealthy enough to possess trained pairs of Peregrine Falcons or Gyrfalcons.

<sup>[73]</sup> [Buffon, 140.](#)

<sup>[74]</sup> In the far more ancient falconry traditions of the Near East, the training of true falcons and hawks was emphasized above all else, and falconers were much more likely to view eagles as potential prey than as potential trainees.

<sup>[75]</sup> [Neckam ed. Wright, xxi.](#)

<sup>[76]</sup> [Kantorowicz, 347.](#)

<sup>[77]</sup> [Map et al, 377-85.](#)

<sup>[78]</sup> [Gaster, 302-03.](#)

<sup>[79]</sup> [Dresser, 389.](#)

<sup>[80]</sup> [Sale, 78.](#)

<sup>[81]</sup> [Ponting, 164.](#)

<sup>[82]</sup> [Newton and Chancellor \(eds\), 106.](#)

<sup>[83]</sup> [Dresser, 393-94.](#)

<sup>[84]</sup> [Lodge, 149.](#)

<sup>[85]</sup> [Albertus trans Scanlan, 195.](#)

<sup>[86]</sup> [Meinertzhagen 1959, 130.](#)

<sup>[87]</sup> [Verner, 413.](#)

<sup>[88]</sup> [Wood 1885, 12.](#)

<sup>[89]</sup> [Lydekker et al 1897, 253.](#)

<sup>[90]</sup> [Bree, 8.](#)

<sup>[91]</sup> [Bree, 9.](#)

<sup>[92]</sup> [Lydekker et al 1897, 225.](#)

- <sup>[93]</sup> [Rudolf trans Danford, 423.](#)
- <sup>[94]</sup> [Frederick II trans Wood and Fyfe, 22.](#)
- <sup>[95]</sup> [Hands, 54.](#)
- <sup>[96]</sup> [Hands, 116, and Walker 1999, 97.](#)
- <sup>[97]</sup> [OED Vol. VI, 360.](#)
- <sup>[98]</sup> [Ferguson-Lees and Christie, 878-79.](#)
- <sup>[99]</sup> [Hands, 116.](#)
- <sup>[100]</sup> [Frederick II trans Wood and Fyfe, 544.](#)
- <sup>[101]</sup> [Albertus trans Scanlan, 207.](#)

<sup>[102]</sup> An interesting point here is that Albert describes the bird as having reddish feathers, although Lammergeiers held in captivity will eventually lose the rust coloring from their feathers unless they're specially provided with iron oxide-laced soil or water to bathe in. It's a rather far-fetched supposition that falconers would have provided this service for their Lammergeiers; however, Albert's remark does seem to imply just that.

- <sup>[103]</sup> [Cramp et al, 61.](#)
- <sup>[104]</sup> [Patrikeev, 103.](#)
- <sup>[105]</sup> [Brown 1983, 23-24, and Mundy et al, 208.](#)
- <sup>[106]</sup> [Albertus trans Scanlan, 207.](#)
- <sup>[107]</sup> [Frederick II trans Wood and Fyfe, 129.](#)
- <sup>[108]</sup> [Schlegel and Wulverhorst, 164.](#)
- <sup>[109]</sup> [Frederick II trans Wood and Fyfe, 20-21.](#)
- <sup>[110]</sup> [Pollard, 80.](#)
- <sup>[111]</sup> [Frederick II trans Wood and Fyfe, 22.](#)
- <sup>[112]</sup> [Murray et al, 330.](#)
- <sup>[113]</sup> The answer, unfortunately for the toads, is "No."
- <sup>[114]</sup> [Gubernatis, 199.](#)
- <sup>[115]</sup> [Mundy et al, 80, 87, and Koford, 45, 61.](#)
- <sup>[116]</sup> Book IX, Chapter 32.
- <sup>[117]</sup> [Anglicus ed. Steele, 110.](#)
- <sup>[118]</sup> [Kelly, 33-34.](#)
- <sup>[119]</sup> [Dement'ev et al, 312.](#)
- <sup>[120]</sup> [Meyburg and Meyburg, 103.](#)
- <sup>[121]</sup> [Krasnov, 9-10, 116..](#)
- <sup>[122]</sup> [Krasnov, 318-19.](#)
- <sup>[123]</sup> [Kelly, 196.](#)
- <sup>[124]</sup> [Kelly, 262.](#)
- <sup>[125]</sup> [Kelly, 196.](#)
- <sup>[126]</sup> [Nikiforuk, 44-46.](#)
- <sup>[127]</sup> [Albertus trans Scanlan, 322.](#)
- <sup>[128]</sup> [Kelly, 107.](#)
- <sup>[129]</sup> [Iverson, 475.](#)
- <sup>[130]</sup> [Schüz and König, 464.](#)
- <sup>[131]</sup> [Dixon-Kennedy, 188, 309.](#)
- <sup>[132]</sup> [White, 109.](#)
- <sup>[133]</sup> [Topsell, 9.](#)
- <sup>[134]</sup> [Albertus trans Scanlan, 321.](#)
- <sup>[135]</sup> [Albertus trans Scanlan, 321.](#)
- <sup>[136]</sup> [Albertus trans Scanlan, 322.](#)
- <sup>[137]</sup> [Baillie-Grohman, 2.](#)
- <sup>[138]</sup> [Bernbaum, 121.](#)
- <sup>[139]</sup> [Baillie-Grohman, 2-4.](#)
- <sup>[140]</sup> [Bijleveld, 6, 8, 34-35.](#)
- <sup>[141]</sup> [Dresser, 404.](#)
- <sup>[142]</sup> [Bijleveld, 13.](#)
- <sup>[143]</sup> [Terrasse 1983, 82.](#)

- [144] [Mingozzi and Estève, 168.](#)
- [145] [Bijleveld, 44.](#)
- [146] [Bijleveld, 42.](#)
- [147] [Rudolf trans Danford, 461.](#)
- [148] [Bijleveld, 14.](#)
- [149] [Mundy et al, 213, and Heredia and Herrero.](#)
- [150] [Verner, 407-08.](#)
- [151] [Dresser, 410.](#)
- [152] [Dresser, 410.](#)
- [153] [Bree, 16.](#)
- [154] [Bree, 13.](#)
- [155] [Bree, 17-18.](#)
- [156] [Bree, 16.](#)
- [157] [Bree, 13.](#)
- [158] [Dresser, 405.](#)
- [159] [Lloyd.](#)
- [160] [Bree, 17-18.](#)
- [161] [Albertus trans Scanlan, 207.](#)
- [162] [Chapman and Buck, 314-15.](#)
- [163] [Rudolf trans Danford, 489.](#)
- [164] [Chapman and Buck, 314-15.](#)
- [165] [Frey and Lexmond, 463.](#)
- [166] [Bree, 14-15.](#)
- [167] [Gaster, 235.](#)
- [168] [Moseley, 349-51.](#)
- [169] [Moseley, 359.](#)
- [170] [Moseley, 360.](#)
- [171] [Platter trans Finn.](#)
- [172] [Bree, 17., and Dresser, 409.](#)
- [173] [Bree, 17.](#)
- [174] [Dresser, 409.](#)
- [175] [Dresser, 399.](#)
- [176] [Dresser, 409.](#)
- [177] [Bree, 17.](#)
- [178] [Verner, 409.](#)
- [179] [Book X, Chapter IV.](#)
- [180] [Negro et al 1999, F14-F16.](#)
- [181] [Bellezza 2008, 477.](#)
- [182] [Meinertzhagen 1959, 130.](#)
- [183] [Cramp et al, 61.](#)
- [184] [Bree, 17-18.](#)
- [185] [Bree, 17.](#)
- [186] [Wood, 12.](#)
- [187] [Bree, 17-18.](#)
- [188] [Dresser, 409.](#)
- [189] [Newton and Chancellor \(eds\), 104.](#)
- [190] [Harting, 331.](#)

[191] The Lammergeier can claim two prizes in contests of scale: it has the largest gape of any bird of prey; and, according to Charles H. Blake in his paper "[The Wings of \*Teratornis merriami\*](#)," it has the longest primary feathers of any living bird, with one notable example measuring a full two feet, three inches (68.6 cm).

- [192] [Dresser, 403.](#)
- [193] [Murray et al, Vol. 6, 40.](#)
- [194] [Meinertzhagen 1959, 130.](#)
- [195] [Caras, 29.](#)

- [196] [Kruuk 2002, 69-73.](#)
- [197] [Johnston 1966, 92-93.](#)
- [198] [Chapman and Buck, 293.](#)
- [199] [Dresser, 410.](#)
- [200] [Rudolf trans Danford, 485.](#)
- [201] [Lucian trans Harmon, 293.](#)
- [202] [Nikiforuk, 53.](#)
- [203] [Fischer, 396.](#)
- [204] [Voous, 50.](#)
- [205] [Dresser, 644.](#)
- [206] [Whistler, 373.](#)
- [207] [Dresser, 644.](#)
- [208] [Dresser, 644,](#) and [Burton 1985, 108.](#)
- [209] [Murray et al Vol. 10, 330.](#)
- [210] [Brohaugh, 64.](#)
- [211] [Shipley, 126.](#)
- [212] [Dement'ev et al, 284.](#)
- [213] [Murray et al, Vol. 4, 419.](#)
- [214] [Dement'ev et al, 283-84.](#)
- [215] [Dresser, 403.](#)
- [216] [Murray et al Vol. VII, Pt 1, 222.](#)
- [217] [Hosking and Lane, 190.](#)
- [218] [Shipley, 42.](#)
- [219] [Murray et al Vol VII Pt 1, 222.](#)
- [220] [Brohaugh, 210.](#) Even so, *Lammergeier* has been variously spelled as “Lammergeyer,” “Lämmergeier,”

“Lammergeyre,” and “Lammervanger”. You just can’t win sometimes.

[221] [Verner, 410.](#) It should be mentioned that the “imaginative name” is not shared with either French or German speech; in French the Golden Eagle is *Aigle royal*, and in German, it’s known as *Steinadler*: “Stone Eagle.”

- [222] [Verner, 409.](#)
- [223] [Dresser, 409.](#)
- [224] All quotes from [Murray et al, Vol. 10, 331.](#)
- [225] [Topsell, 18.](#)
- [226] [Fischer, 395-96.](#)
- [227] [Hornaday, 145.](#)
- [228] [Lodge, 201.](#)
- [229] [Fischer, 400.](#)
- [230] [Terrasse 1983, 81.](#)
- [231] [Verner, 215.](#)
- [232] [Margalida et al 2012, 284.](#)
- [233] [Rudolf trans Danford, 463.](#)
- [234] [Olea and Mateo-Tomás, 1844-45.](#)
- [235] [Dresser, 379,](#) and [Lodge, 20,](#)
- [236] [Dresser, 403.](#)
- [237] [Swann part 1, II.](#)
- [238] [Swann part 1, 28.](#)
- [239] [Lydekker et al 1897, 254.](#) Not content with insulting only the adults of the species, this writer also claimed

that Monk Vulture chicks were “ugly in the extreme.” I suspect that he also would’ve launched a tirade against the vulture’s eggs, if only space had allowed for it.

[240] A recent travel guide co-published by Lonely Planet and the BBC describes this same species as “ugly, unkempt” and “a sorry-looking sight . . . the tramps of the forest . . . scabby faced, balding, feathers askew.” What price progress, eh? Especially when there isn’t any.

- [241] [Lydekker et al 1897, 254.](#)

[242] This is as good a place as any to mention the shellacking that Meinertzhagen's reputation has suffered lately; not without reason, mind you. Evidence has come to light that he stole bird specimens from museums and relabeled them,



changing their recorded locations in order to support his own theories about where they did or did not occur. Anyone interested in the full disclosure of this and the man's many other falsifications should read [Brian Garfield's book \*The Meinertzhagen Mystery: The Life and Legend of a Colossal Fraud\*](#). There is of course no way to prove whether or not his observational writings are factual, given that many of his observations took place without any other witnesses. Garfield concluded (p. 209) that despite Meinertzhagen's pathological lying, "his bird writing, even if sometimes factually wrong, usually tends to be much more dependable and certainly more plausible . . . than his military or political memoirs. The former may be compared with Disney wildlife-movie narrations but the latter are Indiana Jones fantasies."

<sup>[243]</sup> [Meinertzhagen 1959, 128-29.](#)

<sup>[244]</sup> [Meinertzhagen 1959, 17.](#)

<sup>[245]</sup> [Blanco et al, 77-78.](#)

<sup>[246]</sup> [Meinertzhagen 1959, 130.](#)

<sup>[247]</sup> [Meinertzhagen ed. Terres, 33.](#)

<sup>[248]</sup> [Meinertzhagen ed. Terres, 34-35.](#)

<sup>[249]</sup> [Meinertzhagen ed. Terres, 35.](#)

## Endnotes - Chapter 8

<sup>[1]</sup> [Mote, 766-67.](#)

<sup>[2]</sup> [Sale, 8.](#)

<sup>[3]</sup> [Sale, 12-15.](#)

<sup>[4]</sup> A “span” equals eight inches, making Antonio’s measurement 11 feet, four inches (3.5 m); a bit excessive, but not compared to others who have claimed to measure condors spanning 14 feet (4.3 m) or more.

<sup>[5]</sup> [Harris, 3-4.](#)

<sup>[6]</sup> [Harris, 6-7.](#)

<sup>[7]</sup> [White, Jr., 219-221.](#)

<sup>[8]</sup> [Woods, 129.](#)

<sup>[9]</sup> [Harris, 11.](#)

<sup>[10]</sup> [Ridgway.](#)

<sup>[11]</sup> [Quoted in Shufeldt, 7.](#)

<sup>[12]</sup> [Salas-Auvert and Vilorio, 513.](#)

<sup>[13]</sup> [Eggleston, 130-31.](#)

<sup>[14]</sup> [Eggleston, 130-31.](#)

<sup>[15]</sup> [Tarboton, Pickford, and Pickford, 88.](#)

<sup>[16]</sup> [Cassidy \(ed\) Vol. I, 493.](#)

<sup>[17]</sup> [Catesby ed Feduccia, 31-32.](#)

<sup>[18]</sup> [Catesby ed Feduccia, 31.](#)

<sup>[19]</sup> [McAtee, 32.](#)

<sup>[20]</sup> [Eggleston, 70.](#)

<sup>[21]</sup> [Jerome A. Jackson in Palmer \(ed.\) Vol. IV, 23.](#)

<sup>[22]</sup> [Cassidy Vol. I, 494.](#)

<sup>[23]</sup> [Boatright, 284.](#)

<sup>[24]</sup> [Catesby ed Feduccia, 31.](#)

<sup>[25]</sup> [Audubon, 15-16.](#) This observation should be taken with a grain of salt, since Audubon couldn’t always be relied on to correctly distinguish between the Turkey and Black Vultures.

<sup>[26]</sup> [Bartram, 139.](#)

<sup>[27]</sup> [Audubon, 301-02.](#)

<sup>[28]</sup> [Audubon, 310.](#)

<sup>[29]</sup> [Audubon, 301-02.](#)

<sup>[30]</sup> [Lydekker et al 1897, 273.](#)

<sup>[31]</sup> [Audubon, 306.](#)

<sup>[32]</sup> [Sprunt, Jr., and Chamberlain, 151.](#)

<sup>[33]</sup> We open-minded and forthright 21st century types may like to think of ourselves as much less prudish and uptight than the stuffy Victorians of the 19th century, but how many people today would be willing to pet wild, garbage-eating vultures with their bare hands?

<sup>[34]</sup> [McGee, 223.](#)

<sup>[35]</sup> [Molloy, 130-31.](#)

<sup>[36]</sup> [Audubon, 312.](#)

<sup>[37]</sup> [Audubon, 314.](#)

<sup>[38]</sup> [Sprunt, Jr., and Chamberlain, 149.](#)

<sup>[39]</sup> [Molloy, 131.](#)

<sup>[40]</sup> [Molloy, 130-31.](#)

<sup>[41]</sup> [Fraser, 387.](#)

<sup>[42]</sup> [Shearer and Shearer, 5.](#)

<sup>[43]</sup> [Sharp, 190-91.](#)

<sup>[44]</sup> [Edelman, 51.](#)

<sup>[44]</sup> [Harting, 405.](#)

<sup>[45]</sup> [Lowery, Jr., 187.](#)

- [46] [Waterton, 121-22.](#)
- [47] [Ruxton, 15.](#)
- [48] [Hale ed Atkinson, 145-47.](#)
- [49] [Quirk, 81-82.](#)
- [50] [Ruxton, 15.](#)
- [51] [Harper, 381-82.](#)
- [52] Quoted in [Harper, 383-85.](#) I'd like to nominate this as the single stupidest statement to be found in this entire book.
- [53] [Harper, 386-87.](#)
- [54] [Hahn, 177.](#)
- [55] [Harper, 388-92.](#)
- [56] [Jerome A. Jackson in Palmer \(ed.\) Vol. IV, 68.](#)
- [57] [Parry, Keith, and Jimenez, 330.](#)
- [58] [Affentranger, 50-57.](#)
- [59] [McGahan, 325.](#)
- [60] [McGahan and McGahan, 684-99.](#)
- [61] [Affentranger, 50-57.](#)
- [62] [McGee, 217-18.](#)
- [63] [McGee, 225.](#)
- [64] [Tallman, 45-46,](#) and [Puckett, 489-90.](#)
- [65] [Burton 1865, 85, 125.](#)
- [66] [Swann part II, 60.](#)
- [67] [Gonzales, 34.](#)
- [68] [Puckett, 361, 389.](#)
- [69] [Puckett, 346-47.](#)
- [70] [Puckett, 524.](#)
- [71] [Puckett, 436.](#)
- [72] [Jones, Jr., 165.](#)
- [73] [Botkin \(ed\), 672-73.](#)
- [74] [Botkin \(ed\), 672.](#)
- [75] [Adams, 63-64.](#)
- [76] [Tallman, 45-46.](#)
- [77] [Puckett, 74.](#)
- [78] [Adams, 120-21.](#)
- [79] [Botkin 1945, 140,](#) and [Bay, 120.](#)
- [80] [Karsten, 277.](#)
- [81] [Puckett, 150.](#)
- [82] [Puckett, 489-90.](#)
- [83] [Puckett, 489-90.](#)
- [84] [Tallman, 45-46.](#)
- [85] [Bent, 35.](#)
- [86] [Crevècoeur.](#)
- [87] Although Turkey Vultures would undoubtedly feed on the corpse of a person killed by Black Vultures, it's extremely unlikely that these relatively unaggressive birds would take part in the actual killing.
- [88] [Ball and Fisher, 223-261.](#)
- [89] [Rice ed. Lhamon, viii-xi.](#)
- [90] [Lhamon, Jr., 119.](#)
- [91] [Jerome A. Jackson in Palmer \(ed.\) Vol. IV, 31.](#)
- [92] [Ventur, 263.](#)
- [93] [Russell, 44-45.](#)
- [94] [Ventur, 263.](#)
- [95] Interestingly, another scavenging bird in another English-speaking place - the Striated Caracara of the Falkland Islands - has been tagged with a common name of similar origin and construction - *Johnny Rook*.
- [96] [Gonzales, 256.](#)

- [97] [Gonzales, 79-80.](#)
- [98] [Rice ed. Lhamon, 27-28.](#)
- [99] [Rice ed. Lhamon, 1.](#)
- [100] [Salzman, Smith, and West \(eds.\), 1444-45.](#)
- [101] [Lhamon, 181-82.](#)
- [102] [Toll, 43-44.](#)
- [103] [Cassidy \(ed.\) Vol I, 493.](#)
- [104] [Cassidy \(ed.\) Vol I, 493.](#)
- [105] [Cassidy \(ed.\) Vol. III, 134-35.](#)
- [106] [Salzman, Smith, and West \(eds.\), 1444-45.](#)
- [107] [Catesby ed Feduccia, 31.](#)
- [108] [Audubon, 26.](#)
- [109] [Audubon, 293-98, 305.](#)
- [110] [Waterton, 121.](#)
- [111] [Barber, 108.](#)
- [112] [Audubon, 305-09.](#)
- [113] [Chapman, 162-166.](#)
- [114] [Stager, 28.](#)
- [115] [Stager, 26-27.](#)
- [116] [Stager, 32-34.](#)
- [117] <http://www.bbc.co.uk/news/world-europe-13629772>, <http://www.bbc.co.uk/news/world-europe-13956581>, and <http://www.spiegel.de/international/germany/bird-brained-idea-vulture-detective-training-hits-headwinds-a-770994.html>
- [118] [Stager, 54.](#)
- [119] [Lemon, 701.](#)
- [120] [Stager, 38.](#)
- [121] [Smith and Easton, 47-48.](#)
- [122] [Koford, 3.](#)
- [123] [Jerome A. Jackson in Palmer \(ed.\) Vol IV, 32-33.](#)
- [124] [Jerome A. Jackson in Palmer \(ed.\) Vol IV, 33.](#)
- [125] [Jerome A. Jackson in Palmer \(ed.\) Vol IV, 33, and Wetmore, 164.](#)
- [126] [Wetmore, 163.](#)
- [127] [blatko.](#)
- [128] [Jerome A. Jackson in Palmer \(ed.\) Vol IV, 32.](#)
- [129] [Dobie 2006, 38-39.](#)
- [130] [Cameron 1907, 259.](#)
- [131] [Dobie 1955, 270.](#)
- [132] [Davis 1982, 226.](#)
- [133] [Cassidy Vol. I, 493.](#)
- [134] [Cassidy Vol. I, 494.](#)
- [135] [Botkin 1945, 55-56.](#)
- [136] [Crandall, 6-8.](#)
- [137] [Lydekker et al 1897, 270.](#)
- [138] [Craigie and Hulbert Vol. 1, 789.](#)
- [139] [Tschudi, 300.](#)
- [140] [Darwin, 189-90.](#)
- [141] [Byam 1850, 105-09.](#)
- [142] [Buffon, 103-04.](#)
- [143] This is true, from a certain point of view; after all, the Pleistocene mass extinctions that we learned about in Chapter 2 were much more severe in the Americas than in Eurasia or Africa.
- [144] [Buffon, 108-09.](#)
- [145] [Comstock, 120-123.](#)
- [146] [Gailey and Bolwig, 65.](#) To elaborate: when attacking live prey, the Condors employ the strategy of chasing it down on foot and ripping into it with their bills. Not the most elegant or efficient way to kill, perhaps; but the Condors have the size and strength to make it very effective.



- [147] [Parry, Keith, and Jimenez, 330.](#)
- [148] [Koford 1957, 206-07.](#)
- [149] [Bolin, 77-78.](#)
- [150] [Koford 1957, 206-07.](#)
- [151] [Molina, 221-22.](#)
- [152] [Gilliss, 357-58.](#)
- [153] [Bolin, 101.](#)
- [154] [Darwin, 188-89.](#)
- [155] [McBride and Wright, 58-59.](#)
- [156] [McGahan, 27.](#)
- [157] [Molina, 222.](#)
- [158] [Vega trans Jolas, 177.](#)
- [159] [Buffon, 103-05.](#)
- [160] [Lydekker et al 1897, 267-68.](#)
- [161] [Byam 1850, 107-08.](#)
- [162] [Wood 1885, 14.](#)
- [163] [McBride and Wright, 58-59.](#)
- [164] [Carrete et al, 391, 395.](#)
- [165] [Tschudi, 356-57.](#)
- [166] [Tschudi, 300-03.](#)
- [167] [Tschudi, 303.](#)
- [168] [Bolin, 77-78.](#)
- [169] [Darwin, 188-89.](#)
- [170] [Gilliss, 357-58.](#)
- [171] [Darwin, 188-89.](#)
- [172] [Molina, 221-22.](#)
- [173] [Tschudi, 300-03.](#)
- [174] [McGahan, 320-322.](#)
- [175] [Darwin, 188-89.](#)
- [176] [Murphy, 51.](#)
- [177] [Murphy, 54-56.](#)
- [178] [Murphy, 122.](#)
- [179] [Murphy, 189-90.](#)
- [180] [McGahan, 222-24.](#)
- [181] [Murphy, 205.](#)
- [182] [Murphy, 205-06.](#)
- [183] [McGahan, 324.](#)
- [184] [Ridgely and Greenfield, 17.](#)
- [185] [Snyder and Snyder 2000, 154.](#)
- [186] [Lowney, 717.](#)
- [187] [McIlhenny 1939, 472-74.](#)
- [188] [Lowney, 718.](#)
- [189] [Lowney, 718.](#)
- [190] [Peeters and Peeters, 156.](#)
- [191] [Lowney, 718.](#)
- [192] [Bent, 33.](#)
- [193] [Lowney, 717.](#)
- [194] [Woods, 131.](#)
- [195] [M., 295.](#)
- [196] [Jerome A. Jackson in Palmer \(ed.\) Vol IV, 41.](#)
- [197] [Bent, 24.](#)
- [198] [Bent, 38-39.](#)
- [199] [Jerome A. Jackson in Palmer \(ed.\) Vol IV, 40-41.](#)
- [200] [Bullock, 283-84.](#)

- [201] [Buckley.](#)
- [202] [Bullock, 284.](#)
- [203] [M., 296-97.](#)
- [204] [M., 296-97.](#)
- [205] [Quirk, 74-75.](#)
- [206] [For example, Oswandel, 72.](#)
- [207] [Quirk, 130-32.](#)
- [208] [Quirk, 170-72.](#)
- [209] [Buckley.](#)
- [210] [Jerome A. Jackson in Palmer \(ed.\) Vol IV, 30-31.](#)
- [211] In case you're wondering, the most northerly record for a Turkey Vulture to date is Nain, Labrador, in 1941 - about 56° 25" latitude.
- [212] [Jerome A. Jackson in Palmer \(ed.\) Vol IV, 13.](#)
- [213] [Cartron, 672-73.](#)
- [214] [Carrete et al, 391, 395.](#)
- [215] [Kiff, 175.](#)
- [216] [Ridgely and Greenfield, 148.](#)
- [217] [Stager, 36.](#)
- [218] [Forbush, 91.](#)
- [219] [Hill and Neto, 173-76.](#)
- [220] [Buckley.](#)
- [221] [Buckley.](#)
- [222] [Mundy \(sum\) 1985, 470.](#)
- [223] [ffrench, 92-93.](#)
- [224] [Chapman, 148-49.](#)
- [225] [Schlee, 192, and Ridgely and Greenfield, 148.](#)
- [226] [Jerome A. Jackson in Palmer \(ed.\) Vol. IV, 22.](#)
- [227] [Miller 1942, 213.](#)
- [228] [Jackson 1999, 19.](#)
- [229] [Wetmore, 156.](#)
- [230] [Empson, 86-88.](#)
- [231] [Byam 1849, 91-93.](#)
- [232] [Waterton, 84-85.](#)
- [233] [Schlee, 198.](#)
- [234] [Schlee, 196.](#)
- [235] [Ridgely and Greenfield, 148.](#)
- [236] [Smith and Easton, 67.](#)
- [237] [Smith and Easton, 70-71.](#)
- [238] [Bent, 10.](#)
- [239] [Koford, 61.](#)
- [240] [Noel F. R. Snyder in Palmer \(ed.\) Vol. IV, 64.](#)
- [241] [Bent, 9.](#)
- [242] [Ferguson-Lees and Christie, 311-13.](#)
- [243] [Koford, 9.](#)
- [244] [Gabrielson and Jewett, 180-81.](#)
- [245] [Finley 1908 \(a\).](#)
- [246] [Scott 1936, 41-42.](#)
- [247] [Koford, 12.](#)
- [248] [Martin 2005, 106-07.](#)
- [249] [Kiff, 185.](#)
- [250] [Rea and Snyder ed. Glinski, 33.](#)
- [251] [Chamberlain et al, 16709-710.](#)
- [252] [Chamberlain ed. Goetzmann, 189.](#)
- [253] [Chamberlain et al, 16709-710.](#)

- [254] [Chamberlain et al, 16710.](#)
- [255] [Bent, 11.](#)
- [256] [Wilbur 1978, 18.](#)
- [257] [Wilbur 1978, 1.](#)
- [258] [Koford, 21.](#)
- [259] [Koford, 56.](#)
- [260] [Snyder and Snyder 2005, 35.](#)
- [261] [Baird, Brewer, and Ridgway, 342.](#)
- [262] [Koford, 129.](#)
- [263] [Harris, 32.](#)
- [264] [Smith and Easton, 81.](#)
- [265] [Bent, 7.](#)
- [266] [Bent, 7.](#)
- [267] [Snyder and Snyder 2000, 253-54.](#)
- [268] [Snyder and Snyder 2000, 250-52.](#)
- [269] [Wilbur 1978, 106.](#)
- [270] [McMillan, 48.](#)
- [271] [Dawson, 1734.](#)
- [272] [Noel F. R. Snyder in Palmer Vol. IV, 52.](#)
- [273] [Wilbur 1978, 1.](#)
- [274] [Cherfas, 94.](#) I wish I was making this up, but it's quoted verbatim.
- [275] [Miller 1942, 212-13.](#)
- [276] [Grossman, Grossman, and Hamlet, 38.](#)
- [277] [Everett, 106.](#)
- [278] [Hilty, 239.](#)
- [279] [Feduccia 1996, 304.](#) Feduccia also subtitled this portion of his book "The California Condor: A Long Road to Extinction," presumably in order to ensure that no one would misinterpret his remarks.
- [280] [Dawson, 1733.](#)
- [281] [Miller 1942, 212-13.](#)
- [282] [Dawson, 1720.](#)

## Endnotes - Chapter 9

<sup>[1]</sup> This geographical inaccuracy isn't the prerogative of just one safari park; I know of a number of American zoos that display Eurasian Monk Vultures in exhibits of otherwise African animals, presumably because the zoos think that their clientele would be most comfortable seeing them there.

<sup>[2]</sup> Sometimes the feathers of only one wing are trimmed, which ensures that the bird will go into an immediate and involuntary descending turn if it becomes airborne. However, trimming only one wing runs the risk that the bird may be able to gather just enough lift with the untrimmed wing to escape.

<sup>[3]</sup> [Cooper, 152.](#)

<sup>[4]</sup> [Watkinson, 46-47.](#) Information about this sequence of events is rather hard to come by, and a few of the details here may not be correct; but the description as a whole should be reasonably accurate.

<sup>[5]</sup> Despite much searching, I have been unable to ascertain the ultimate fate of these birds; I don't know if they were eventually recaptured, accidentally or intentionally killed, or allowed to live out the remainder of their lives flying free in Mallorca.

<sup>[6]</sup> The vultures in *Kwai* are somewhat out of place, being Turkey Vultures, but let's not nitpick.

<sup>[7]</sup> One of those rare examples of the debunking being more ridiculous than the myth.

<sup>[8]</sup> [Shuker, 69.](#)

<sup>[9]</sup> [Mundy et al, 187.](#)

<sup>[10]</sup> [Lever, 58-59.](#)

<sup>[11]</sup> [Santana, Potter, and Temple, 235-36.](#)

<sup>[12]</sup> [Lever, 58-59.](#)

<sup>[13]</sup> [Santana, Potter, and Temple, 235-36.](#)

<sup>[14]</sup> [Wells, Round, and Treesucon, 146.](#)

<sup>[15]</sup> [Satheesan 2000, 166-67.](#)

<sup>[16]</sup> [Herklots, 58-59.](#)

<sup>[17]</sup> [James Wan-Fu, 65-66.](#)

<sup>[18]</sup> [Ploeg and Minter, 109.](#)

<sup>[19]</sup> [Brazil, 96.](#)

<sup>[20]</sup> [Brazil, 96.](#)

<sup>[21]</sup> [Li and Kasorndorkbua, 57.](#)

<sup>[22]</sup> [Wells, Round, and Treesucon, 145.](#)

<sup>[23]</sup> [Li and Kasorndorkbua, 60.](#)

<sup>[24]</sup> [Wang Luan Keng, 219,](#) and [Jeyarajasingam, 125.](#)

<sup>[25]</sup> [Wang Luan Keng, 219.](#)

<sup>[26]</sup> [Li and Kasorndorkbua, 57-59.](#)

<sup>[27]</sup> [Li and Kasorndorkbua, 60.](#)

<sup>[28]</sup> [Xin Lu et al, 166.](#)

<sup>[29]</sup> [http://cnnphotos.blogs.cnn.com/2012/10/06/climate-change-on-the-tibetan-plateau/?hpt=hp\\_c3](http://cnnphotos.blogs.cnn.com/2012/10/06/climate-change-on-the-tibetan-plateau/?hpt=hp_c3)

<sup>[30]</sup> [BirdLife International 2012 \(j\).](#)

<sup>[31]</sup> [BirdLife International 2012 \(j\).](#)

<sup>[32]</sup> [http://news.xinhuanet.com/english2010/sci/2011-07/14/c\\_13985755.htm](http://news.xinhuanet.com/english2010/sci/2011-07/14/c_13985755.htm)

<sup>[33]</sup> [Revers and Bögel, 367.](#)

<sup>[34]</sup> [Htin et al, 381-82,](#) and [Li and Kasorndorkbua, 60.](#)

<sup>[35]</sup> [Feuer 1993.](#)

<sup>[36]</sup> [Heber, 277.](#)

<sup>[37]</sup> Presumably meaning the mythical roc; as the tale of Sinbad was written long before condors were known to the people of the Old World, Sinbad certainly never encountered them.

<sup>[38]</sup> [Clark 1993, 308.](#)

<sup>[39]</sup> [Shuker, 62.](#)

<sup>[40]</sup> When looking at these big bird stories as a whole, there seems to be a sliding scale of size and ominousness upon which different names are applied. A "vulture" is bigger and more ominous than a "buzzard" or "eagle," a "condor" is bigger and more ominous than a "vulture," and a mythical creature like a Roc or Thunderbird is the biggest and most ominous of all.



<sup>[41]</sup> [Clark 1993, 309.](#)  
<sup>[42]</sup> [Eberhart Vol. I, 42.](#)  
<sup>[43]</sup> [Anonymous \(b\).](#)  
<sup>[44]</sup> [Anonymous \(c\).](#) This Griffon was later recaptured, hungry but otherwise none the worse for wear and without any battle scars indicating that it had taken out a few training aircraft or helicopters in its foray.

<sup>[45]</sup> [Lilienthal trans Isenthal, 128.](#)

<sup>[46]</sup> [Chanute, 72.](#)

<sup>[47]</sup> [Mouillard, 403.](#)

<sup>[48]</sup> [Palma trans Lane, 115.](#)

<sup>[49]</sup> [Herskovits and Herskovits, 34.](#)

<sup>[50]</sup> [Jarrett \(ed.\), 27.](#)

<sup>[51]</sup> [Jarrett \(ed.\), 27-28.](#)

<sup>[52]</sup> [Mouillard, 446.](#)

<sup>[53]</sup> [Chanute, 152.](#)

<sup>[54]</sup> [Chanute, 39.](#)

<sup>[55]</sup> [Newcomb, 332.](#)

<sup>[56]</sup> [Newcomb, 340.](#)

<sup>[57]</sup> [Wood 1962, 84.](#)

<sup>[58]</sup> Some pre-Pleistocene (>2 million years ago) birds, as well as pterodactyls, were well outside of this size range, but these creatures lived in atmospheric conditions that were different than today's, and so were not bound by the same constraints as living and recently extinct birds.

<sup>[59]</sup> [Howard 1972, 343.](#)

<sup>[60]</sup> [Chanute, 83.](#)

<sup>[61]</sup> [Chanute, 95.](#)

<sup>[62]</sup> [Newcomb, 332.](#)

<sup>[63]</sup> [Newcomb, 338.](#)

<sup>[64]</sup> [Newcomb, 338.](#)

<sup>[65]</sup> [Mouillard, 459.](#)

<sup>[66]</sup> [Chanute, 151-52.](#)

<sup>[67]</sup> [Chanute, 147-49.](#)

<sup>[68]</sup> [Mouillard, 403.](#)

<sup>[69]</sup> [Mouillard, 452.](#)

<sup>[70]</sup> [Chanute, 149.](#)

<sup>[71]</sup> [Chanute, 153.](#)

<sup>[72]</sup> [Chanute, 152.](#)

<sup>[73]</sup> [Hallion, 128.](#)

<sup>[74]</sup> [Ader trans Kennett, 58-59.](#)

<sup>[75]</sup> [Chanute, 212-13.](#)

<sup>[76]</sup> [Ader trans Kennett, xiv-xx.](#)

<sup>[77]</sup> [McFarland \(ed.\) Vol. I, 3-4.](#)

<sup>[78]</sup> [McFarland \(ed.\) Vol. I, 44.](#)

<sup>[79]</sup> [McFarland \(ed.\) Vol. I, 38.](#)

<sup>[80]</sup> [McFarland \(ed.\) Vol. I, 263.](#)

<sup>[81]</sup> [McFarland \(ed.\) Vol. II, 1127.](#)

<sup>[82]</sup> [Cassidy \(ed.\) Vol. I, 493.](#)

<sup>[83]</sup> [Audubon, 302.](#)

<sup>[84]</sup> [McFarland \(ed.\) Vol. I, 18.](#)

<sup>[85]</sup> [Jarrett \(ed.\), 106.](#)

<sup>[86]</sup> [McFarland \(ed.\) Vol. I, 334.](#)

<sup>[87]</sup> [Jarrett \(ed.\), 152.](#)

<sup>[88]</sup> [McFarland \(ed.\) Vol. I, 15.](#)

<sup>[89]</sup> [Langley and Manly, 288.](#)

<sup>[90]</sup> [Langley and Manly, 293.](#)

<sup>[91]</sup> [Langley and Manly, 293.](#)

<sup>[92]</sup> [Hallion, 152.](#)

<sup>[93]</sup> [Shearer and Shearer, 175.](#)

<sup>[94]</sup> [McFarland \(ed.\) Vol. II, 1168-69.](#)

<sup>[95]</sup> [McFarland \(ed.\) Vol. I, 479.](#)

<sup>[96]</sup> [http://en.wikipedia.org/wiki/Sud\\_Aviation\\_Vautour](http://en.wikipedia.org/wiki/Sud_Aviation_Vautour) and [http://en.wikipedia.org/wiki/IAI\\_Nesher](http://en.wikipedia.org/wiki/IAI_Nesher). In 2007, the US Department of Defense announced a plan for a new drone, codenamed "VULTURE" (Very-high-altitude, Ultra-endurance, Loitering Theater Unmanned Reconnaissance Element). We probably shouldn't read too much into this, but it is interesting that this acronym was chosen specifically for an *unmanned* aircraft.

<sup>[97]</sup> [Dickson, 66.](#)

<sup>[98]</sup> [Dickson, 368.](#)

<sup>[99]</sup> [Jarrett \(ed.\), 141.](#)

<sup>[100]</sup> [Grosser, 8-9.](#)

<sup>[101]</sup> [Chanute, 21-22.](#)

## Endnotes – Chapter 10

- <sup>[1]</sup> [Durant and Durant, 197.](#)
- <sup>[2]</sup> [Dio Cocceianus trans Cary, 197-201.](#)
- <sup>[3]</sup> [Durant and Durant, 198-203.](#)
- <sup>[4]</sup> [Dunnigan & Nofi, 419.](#)
- <sup>[5]</sup> [Rothenberg, 81.](#)
- <sup>[6]</sup> [Wright 1964, 44-5.](#)
- <sup>[7]</sup> [Wright 1964, 38.](#)
- <sup>[8]</sup> [Mercatante, 209.](#)
- <sup>[9]</sup> [Horapollo, 64-65.](#)
- <sup>[10]</sup> [Smith \(trans\), 124.](#)
- <sup>[11]</sup> [Anglicus, 110.](#)
- <sup>[12]</sup> 5.23.81, translated by John J. Savage.
- <sup>[13]</sup> [Tomkinson.](#)
- <sup>[14]</sup> [Churchill.](#)
- <sup>[15]</sup> [Quirk, 93.](#)
- <sup>[16]</sup> [White, 109.](#)
- <sup>[17]</sup> [Aelian trans Scholfield, 46.](#)
- <sup>[18]</sup> [Haglund, Reay, and Swindler, 595-99.](#)
- <sup>[19]</sup> [Haglund, Reay, and Swindler, 602.](#)
- <sup>[19]</sup> [Reeves, 525.](#)
- <sup>[21]</sup> [Reeves, 527.](#)
- <sup>[22]</sup> [Reeves, 526-27.](#)
- <sup>[22]</sup> [Reeves, 527.](#)
- <sup>[25]</sup> [Haglund, Reay, and Swindler, 595-99.](#)
- <sup>[26]</sup> [Haglund, Reay, and Swindler, 595-99.](#)
- <sup>[27]</sup> [Reeves, 527.](#)
- <sup>[28]</sup> [Spradley, Hamilton, and Giordano, 58-60.](#)
- <sup>[29]</sup> [Spradley, Hamilton, and Giordano, 59-60.](#)
- <sup>[30]</sup> [Hibbert, 124-25.](#)
- <sup>[31]</sup> [Ruxton, 114-115.](#)
- <sup>[32]</sup> [Burton 1870, 290.](#)
- <sup>[33]</sup> [Haglund, Reay, and Swindler, 601.](#)
- <sup>[34]</sup> [Iverson, 389-90.](#)
- <sup>[35]</sup> [Reeves, 527, and Spradley, Hamilton, and Giordano, 58-60.](#)
- <sup>[36]</sup> [Spradley, Hamilton, and Giordano, 58.](#)
- <sup>[37]</sup> [Gordon, 145.](#)
- <sup>[38]</sup> [Kennan, 73-75.](#) The crabs in question were probably *Gecarcinus ruricola*.
- <sup>[39]</sup> [Kennan, 139.](#)
- <sup>[40]</sup> [Dobie 2006, 124.](#)
- <sup>[41]</sup> [Smithwick and Donaldson, 181-82.](#)
- <sup>[42]</sup> [Dobie 2006, 124-25.](#) Looking at the issue from a modern, cynical point of view, it's tempting to leap to the conclusion that this "scavengers won't eat Mexicans" business was actually nationalist-racist propaganda intended to denigrate the Mexicans. It's certainly possible, though I must admit that I can't think of a coherent reason why the Mexicans' enemies would put them down by claiming that vultures wouldn't eat them.
- <sup>[43]</sup> [Dobie 2006, 124-25.](#)
- <sup>[44]</sup> [Reeves, 526.](#)
- <sup>[45]</sup> [Porch, 109.](#)
- <sup>[46]</sup> [Keegan 1993, 187-88.](#)
- <sup>[47]</sup> [Young 1900, 136.](#)
- <sup>[48]</sup> [Young 1900, 45-46.](#)
- <sup>[49]</sup> [Meinertzhagen 1959, 128.](#)

- <sup>[50]</sup> [Wilberforce, 128.](#)
- <sup>[51]</sup> [Myatt, 75.](#)
- <sup>[52]</sup> [Feuer 1993, 97.](#)
- <sup>[53]</sup> [Edgerton, 105.](#)
- <sup>[54]</sup> [Jal and Davies 167-71](#)
- <sup>[55]</sup> [Jal and Davies, 175.](#)
- <sup>[56]</sup> [Davis 1982, 136-38.](#)
- <sup>[57]</sup> [Zeitlin, 55.](#)
- <sup>[58]</sup> [Zeitlin, 21.](#)
- <sup>[59]</sup> [Chamberlain ed. Goetzmann, 132.](#)
- <sup>[60]</sup> [Terry, 47.](#)
- <sup>[61]</sup> [Lydekker et al 1897, 253.](#)
- <sup>[62]</sup> [Weld, 43.](#)
- <sup>[63]</sup> [König 1974, 316.](#)
- <sup>[64]</sup> [Chamberlain ed. Goetzmann, 189.](#)
- <sup>[65]</sup> [Quirk, 102-03.](#)
- <sup>[66]</sup> [Pfeil, 215-16.](#)
- <sup>[67]</sup> [Forbes, 343.](#)
- <sup>[68]</sup> [Maxwell \(ed\), 386-87.](#)
- <sup>[69]</sup> [Keegan 1976, 107.](#)
- <sup>[70]</sup> [Verner, 383-86.](#)
- <sup>[71]</sup> [Whistler, 354-55.](#)
- <sup>[72]</sup> [Chamberlain ed. Goetzmann, 189.](#)
- <sup>[73]</sup> [Dement'ev et al, 284, and Herklots, 58-59.](#)
- <sup>[74]</sup> [Herklots, 58-59.](#)
- <sup>[75]</sup> [James Wan-Fu, 65-66.](#)
- <sup>[76]</sup> [Pallas, 458.](#)
- <sup>[77]</sup> [Tristram 1860, 391.](#)
- <sup>[78]</sup> [Bruce.](#)
- <sup>[79]</sup> [Chamberlain ed. Goetzmann, 174.](#)
- <sup>[80]</sup> [Hanson, 200.](#)
- <sup>[81]</sup> [Meyer & Brysac, 103.](#)
- <sup>[82]</sup> [Wilson, 178.](#)
- <sup>[83]</sup> [Roosevelt, 91.](#)
- <sup>[84]</sup> [Tomkinson.](#)
- <sup>[85]</sup> [Chamberlain ed. Goetzmann, 116.](#)
- <sup>[86]</sup> [Meinertzhagen 1959, 128.](#)
- <sup>[87]</sup> [Godman, 120-21.](#)
- <sup>[88]</sup> [Nash, 122-23.](#)

<sup>[89]</sup> Vultures aren't the only scavenging birds that may prey upon wounded or incapacitated humans; albatrosses have been reported to attack survivors of shipwrecks and sea battles once they were in the water. And woe betide whoever gets maimed with an unkindness of ravens nearby.

- <sup>[90]</sup> [Leuchars, 127.](#)
- <sup>[91]</sup> [Byron, 21-22.](#)
- <sup>[92]</sup> [Terry, 47.](#)
- <sup>[93]</sup> [Drayson, 88-89, 106, 123.](#)
- <sup>[94]</sup> [Chamberlain ed. Goetzmann, 127.](#)
- <sup>[95]</sup> [Marcus, 239.](#)
- <sup>[96]</sup> [Dresser, 375.](#)
- <sup>[97]</sup> [Jal and Davies, 167.](#)
- <sup>[98]</sup> [Baker 1972, 29.](#)
- <sup>[99]</sup> [Hibbert, 157-58.](#)
- <sup>[100]</sup> [Godman, 121.](#)
- <sup>[101]</sup> [Meinertzhagen 1930, 421.](#)



- <sup>[102]</sup> [Johnson 1978, 70.](#)
- <sup>[103]</sup> [Coox, 816.](#)
- <sup>[104]</sup> [Houston 1996, 331.](#)
- <sup>[105]</sup> [Pester, 207-08.](#)
- <sup>[106]</sup> [Roosevelt, 107.](#)
- <sup>[107]</sup> [Austin, 50-51.](#)
- <sup>[108]</sup> [Ryan, 99.](#)
- <sup>[109]</sup> [Ader trans Kennett, 57.](#)
- <sup>[110]</sup> [Ferguson, 361.](#)
- <sup>[111]</sup> [Ferdowsi trans Davis, 117.](#)
- <sup>[112]</sup> [Roosevelt, 103.](#)
- <sup>[113]</sup> [Liulevicius, 158.](#)
- <sup>[114]</sup> [Aelian trans Scholfield, 22.](#)
- <sup>[115]</sup> [Rival, 58.](#)
- <sup>[116]</sup> [Yarrow, 8-9.](#)
- <sup>[117]</sup> [Grinnell, Grinnell, and Tuell Vol. 2, 163.](#)
- <sup>[118]</sup> [Simón ed Jones, 4254.](#)
- <sup>[119]</sup> [Butler and Loomis \(trans\) Book XI, 169.](#)
- <sup>[120]</sup> [Butler and Loomis \(trans\) Book XXII, 344.](#)
- <sup>[121]</sup> [Butler and Loomis \(trans\) Book XVI, 263.](#)
- <sup>[122]</sup> [Vermeule, 103-5.](#)
- <sup>[123]</sup> [Vermeule, 46.](#)
- <sup>[124]</sup> [Ferdowsi trans Davis, 81.](#)
- <sup>[125]</sup> [Ferdowsi trans Davis, 166.](#)
- <sup>[126]</sup> [Smith \(trans\) 2005, 64, 122-24, 131.](#)
- <sup>[127]</sup> [Smith \(trans\) 2005, 122-23.](#)
- <sup>[128]</sup> [Frankfort, 70-73.](#)
- <sup>[129]</sup> [Beazley, 96-96.](#)
- <sup>[130]</sup> [Hamblin, 25.](#)
- <sup>[131]</sup> [Sater, 196, 297, 337.](#)
- <sup>[132]</sup> [Feuer 1993, 70.](#)
- <sup>[133]</sup> [Hemment, 101-02.](#)
- <sup>[134]</sup> [Hassig, 117.](#)
- <sup>[135]</sup> [Hanson, 202-03.](#)
- <sup>[136]</sup> [Lewis \(editor\), 53.](#)
- <sup>[137]</sup> [Gore and Won, 171.](#)
- <sup>[138]</sup> [Holmes 1986, 106-7.](#)
- <sup>[139]</sup> [Hess, 132.](#)

<sup>[140]</sup> However, at the beginning of World War I, the French general staff seriously considered training eagles to attack German aircraft, in lieu of any other way to intercept them (fighter planes armed with synchronized machine guns wouldn't appear until later). All jokes about Gallic martial prowess aside, the idea isn't as ridiculous as it sounds; WWI airplanes were slow, flimsy constructs of wood and fabric for the most part, and a large eagle could certainly outrun one in a dive and inflict serious enough damage on it to force it out of the sky.

<sup>[141]</sup> [James 1981, 108.](#)

<sup>[142]</sup> [Coopland, 40.](#)

<sup>[143]</sup> [Gladstone.](#)

<sup>[144]</sup> Sources reviewed before reaching this conclusion include, but are not limited to: [MacDonald](#), [Hoobler and Hoobler](#), [Simpson](#), Munro's 1916 essay "Birds on the Western Front" in [Carey](#), and [Gladstone](#).

<sup>[145]</sup> [Ferguson, 341.](#)

<sup>[146]</sup> [Keegan 1976, 306.](#)

<sup>[147]</sup> [Masterman, 197.](#)

<sup>[148]</sup> [Paine, 203-04.](#)

<sup>[149]</sup> [Astor, 64.](#)

<sup>[150]</sup> [Hoobler and Hoobler, 117.](#)

<sup>[151]</sup> [Hoobler and Hoobler, 40-41.](#)

<sup>[152]</sup> [Winter, 146.](#)

<sup>[153]</sup> [Simpson, 105.](#)

<sup>[154]</sup> [MacDonald, 204.](#)

<sup>[155]</sup> [Ferdowsi trans Davis, 284-85.](#)

<sup>[156]</sup> [Dunkelman, 127-28.](#)

<sup>[157]</sup> For example, [Herklots, 58-59](#), [Wright 1968, 153-54](#), [Astor, 64](#), and [Baker 1972, 29](#).

# Endnotes - Chapter 11

<sup>[1]</sup> [Matthew, 121.](#)

<sup>[2]</sup> [Sumner and Dixon, 30.](#)

<sup>[3]</sup> As these persons also tend to live somewhat nomadic lives, and frequently abandon most of the personal grooming habits that their cultures impose upon them, they can easily be thought of as atavistic throwbacks to the wild, wandering scavengers that all humans once were.

<sup>[4]</sup> [DeVault, Rhodes, Jr., and Shivik, 228-31.](#)

<sup>[5]</sup> [Kitchener, 82-3.](#)

<sup>[6]</sup> [Cruikshank, 474-75.](#)

<sup>[7]</sup> [Howard 1932, 73.](#)

<sup>[8]</sup> [Brodkorb, 268-271,](#) and [Steadman and Martin, 467-68.](#)

<sup>[9]</sup> Quoted in [Colinvaux, 31.](#) Yes, one can well imagine that predators would just be *lining up* for the privilege of taking on a six-ton, forty-foot-long reptile with teeth the size of steak knives.

<sup>[10]</sup> [Auffenberg \(a\), 192.](#)

<sup>[11]</sup> [Brown and Amadon, 123.](#)

<sup>[12]</sup> [Mills 1989, 126-27,](#) and [Ewer, 204.](#)

<sup>[13]</sup> [Mundy et al, 158.](#)

<sup>[14]</sup> [Mills 1990, 92.](#)

<sup>[15]</sup> [Koford 1957, 206-07,](#) and [Bolin, 77-78.](#)

<sup>[16]</sup> [Owre and Northington, 203-04.](#)

<sup>[17]</sup> [Brandt, 539.](#)

<sup>[18]</sup> [Holdaway, 606-7,](#) and [De Boer and Sinoo, 89-107.](#) Excepting the Lammergeier, Egyptian Vulture, and Palmnut Vulture; as mentioned [in Chapter 1,](#) those three species have their own distinct lineages and are not closely related to the other Old World vultures.

<sup>[19]</sup> [Janzen 1976, 380-81.](#)

<sup>[20]</sup> With the conspicuous exceptions of certain venomous snakes (and their mimics), which deliberately advertise themselves with bold warning colors.

<sup>[21]</sup> [Catesby ed Feduccia, 31-32.](#)

<sup>[22]</sup> [Catesby ed Feduccia, 31.](#)

<sup>[23]</sup> [Todd, 124.](#) This account is also notable because the description of the Turkey Vulture's behavior is strikingly similar to the wings-and-tail-spread "dancing" that it and the other New World vultures perform when courting mates. Quite likely, one of the behaviors evolved from the other.

<sup>[24]</sup> [Bent, 19.](#)

<sup>[25]</sup> [Pignède trans Harrison and Macfarlane, 410-11.](#)

<sup>[26]</sup> [Roy, 191-92.](#)

<sup>[27]</sup> [Turner, 214,](#) and [Platts, 892.](#)

<sup>[28]</sup> [Ali and Ripley, 296,](#) and [Turner, 154.](#)

<sup>[29]</sup> Just search "vultures" or "buzzards" on YouTube if you don't believe me.

<sup>[30]</sup> [Mundy et al, 177, 268.](#) The use of the bill as a killing weapon is sometimes cited as a distinction between the Old World vultures and other raptors, which supposedly only use their talons to kill; however, eagles that attack prey larger than themselves do often dispatch it by pecking at the head and neck, and some smaller raptors such as Black Kites habitually kill their prey with their bills, rather than their talons.

<sup>[31]</sup> [Mundy et al, 158.](#)

<sup>[32]</sup> [Mundy et al, 273.](#)

<sup>[33]</sup> [McCulloch, 33-34.](#)

<sup>[34]</sup> [Ellis et al, 16.](#)

<sup>[35]</sup> [Mundy et al, 87, 363,](#) [Margalida, Campi3n and Don3zar, 457,](#) and [Wood 2009.](#)

<sup>[36]</sup> [Madoc, 68.](#)

<sup>[37]</sup> [McIlhenny 1939, 472-74.](#)

<sup>[38]</sup> [Fisher 1946, 638.](#)

<sup>[39]</sup> [Audubon, 295.](#)

<sup>[40]</sup> [Glading and Glading, 244-45.](#)

- [41] [Bent, 20.](#)
- [42] [Iverson, 34.](#)
- [43] [Iverson, 31-33.](#)
- [44] [Habenstein and Lamers, 180-81.](#)
- [45] [Iverson, 474.](#)
- [46] [Histories Book II:22-23.](#)
- [47] [Palmer 1872, 88.](#)
- [48] [Greenwood, 330,](#) [Ali and Ripley, 307,](#) and [Brown and Amadon, 317.](#)
- [49] [Allen 1926, 1045.](#)
- [50] [Dobie 2006, 229.](#)
- [51] [Blanco et al, 77-78.](#)
- [52] [McGahan, 173-176.](#)
- [53] [Mech and Boitani \(eds\) 269-70.](#)
- [54] [Auffenberg \(a\), 193.](#)
- [55] [Klingender, 442.](#)
- [56] [Newcomb, 330.](#)
- [57] [Chapman and Buck, 203.](#)
- [58] [Viré, 1013.](#)
- [59] [Albertus trans Scanlan, 321.](#)
- [60] [Hudson, 83-84.](#)
- [61] [Maynard, 329.](#)
- [62] [Dorson, 470.](#)
- [63] [Mendelssohn and Leshem, 230.](#)
- [64] [Koford, 61.](#)
- [65] [Martin 1996, 356.](#)

[66] The *most* effeminate of deaths would be to perish in childbirth - not coincidentally, vultures have been involved there, too, as we saw [in Chapter 3.](#)

- [67] [Thurber, 97.](#)
- [68] [Finley 1908 \(b\), 60-61.](#)
- [69] [Book IX, Chapter 11.](#)
- [70] [König 1983, 164,](#) and [Mundy et al, 129.](#)
- [71] [Shomon, 50-51.](#)
- [72] [Tewes, 493-498.](#)
- [73] [Rabenold, 37,](#) and [Buckley.](#)
- [74] [Rabenold, 40.](#)
- [75] [Wallace and Temple 1983, 411-412.](#)
- [76] [Rabenold, 36.](#)
- [77] [Wallace and Temple 1987, 293.](#)
- [78] [Houston 1996, 333.](#)

[79] If the extremely long dependence of vultures upon their parents had been widely known a century ago, the conclusion drawn would inevitably have been that vultures took so long to learn because they were so dumb. Perhaps, in this case, human ignorance left the birds better off.

- [80] [Wallace and Temple 1985, 77-78.](#)
- [81] [Wallace and Temple 1985, 78.](#)
- [82] [Houston 1996, 327-335.](#)
- [83] [Wallace and Temple 1985, 79.](#)
- [84] [Wallace and Temple 1985, 79.](#)
- [85] [Terrasse et al, 481.](#)
- [86] [Houston 1996, 332-33.](#)
- [87] [Wallace and Temple 1985, 77.](#)
- [88] [Wallace and Temple 1985, 77-78.](#)
- [89] [Blanco et al, 77-78.](#)
- [90] [Meinertzhagen 1959, 28.](#)
- [91] [Mendelssohn, 189.](#)



- [92] [Mills 1990, 55-56.](#)
- [93] [Mundy et al, 193.](#)
- [94] [Margalida and Bertran, 159.](#)
- [95] [Cramp et al, 61.](#)
- [96] [Koford, 64.](#)
- [97] [Rudolf trans Danford, 396-97.](#)
- [98] [Wallace and Temple 1987, 294.](#)
- [99] [Dawson, 1727.](#)
- [100] [Hancock, Kushlan, and Kahl, 32-33.](#)
- [101] [Dresser, 394.](#)
- [102] [Rudolf trans Danford, 351.](#)
- [103] [Koford 1957, 206-07, and Bolin, 77-78.](#)
- [104] [Whitacre \(ed\), 46, 180, 198, 221.](#)
- [105] [Dement'ev et al, 290.](#)
- [106] [Heredia and Herrero.](#)
- [107] [Rahmani and Manakadan, 317-18.](#)
- [108] [Brown 1971, 57.](#)
- [109] [Tristram 1867, 178.](#)
- [110] [Viré, 1013.](#)
- [111] [Twain, 15.](#)
- [112] [Mundy et al, 33.](#)
- [113] [Shufeldt, 13.](#)
- [114] [Mundy et al, 36.](#)
- [115] [Davis 1983, 327, and Mundy et al, 142, 156.](#)
- [116] [Negro et al 2002, 807.](#)
- [117] [Mundy 2000, 156.](#)
- [118] [Dresser, 409.](#)
- [119] [Negro and Margalida, 62.](#)
- [120] [Negro et al 1999, F14-F17.](#)
- [121] Book X, Chapter IV.
- [122] [Frazer i, 155.](#)
- [123] [Nitzsch trans Dallas, 2.](#)
- [124] It's a rare article about the Marabou that doesn't include some variant of the phrase "world's ugliest bird."
- [125] If you want the citations for all of this, then you *are* going to have to traipse through Chapters 4 and 7 again.
- [126] [Rea 1998, 24-26.](#)
- [127] [Pignède trans Harrison and Macfarlane, 10-11.](#)
- [128] Book X, Chapter VII.
- [129] [Byam 1850, 110.](#)
- [130] [Campbell 2009, 344-46.](#)
- [131] [Chapman 1921, 381.](#)
- [132] [Rudolf trans Danford, 485-86.](#)
- [133] [Tristram 1885, 94.](#)
- [134] [Head, 256-57.](#)
- [135] [Chapman and Buck, 294-96.](#)
- [136] [Rudolf trans Danford, 479.](#)
- [137] [Rudolf trans Danford, 476.](#)
- [138] [Riasanovsky, 16.](#)
- [139] [Riasanovsky, 16-17.](#)
- [140] [Robert and Vigne, 776, and Finlayson, 136.](#)
- [141] [Collins, 298.](#)
- [142] [Klingender, 212-23.](#)
- [143] [Fox 1984, 50-51.](#)
- [144] [Pain et al, 661-63, Bijleveld, 48-49, and Olea and Mateo-Tomás, 1851.](#)

## Endnotes - Chapter 12

- <sup>[1]</sup> [Montejo trans Kaufman, 97-101.](#)
- <sup>[2]</sup> [Chambers, 200-02.](#)
- <sup>[3]</sup> [McMillan, 53.](#)
- <sup>[4]</sup> [McMillan, 136-37.](#)
- <sup>[5]</sup> [Koford, 21.](#)
- <sup>[6]</sup> [Audubon, 314.](#)
- <sup>[7]</sup> [Baillie-Grohman, 14.](#)
- <sup>[8]</sup> [McGahan, 320-22.](#)
- <sup>[9]</sup> [Baird, Brewer, and Ridgway, 348.](#)
- <sup>[10]</sup> [Rudolf trans Danford, 117.](#)
- <sup>[11]</sup> [Chapman and Buck, 200-01.](#)
- <sup>[12]</sup> [Chapman and Buck, 202-03.](#)
- <sup>[13]</sup> [Prejevalsky trans Morgan, 240.](#)
- <sup>[14]</sup> [Tschudi, 300-03.](#)
- <sup>[15]</sup> [McGahan, 318.](#)
- <sup>[16]</sup> [Chapman 1921, 378-79.](#)
- <sup>[17]</sup> [Mundy et al, 148.](#)
- <sup>[18]</sup> [Verner, 404-05.](#)
- <sup>[19]</sup> [Dresser, 375.](#)
- <sup>[20]</sup> [Rudolf trans Danford, 470-71.](#)
- <sup>[21]</sup> [Houston 1996, 332.](#)
- <sup>[22]</sup> [Houston 1996, 333.](#)
- <sup>[23]</sup> [BirdLife International 2012 \(d\).](#)
- <sup>[24]</sup> [Mundy \(sum\) 1985, 470.](#)
- <sup>[25]</sup> [Olea and Mateo-Tomás, 1851.](#)
- <sup>[26]</sup> [Mundy \(sum\) 1985, 470.](#)
- <sup>[27]</sup> [Scott, Scott, and Boshoff, 234-35.](#)
- <sup>[28]</sup> [Mundy 2000, 152.](#)
- <sup>[29]</sup> [Prejevalsky trans Morgan, 240-42.](#)
- <sup>[30]</sup> [Rudolf trans Danford, 240-42.](#)
- <sup>[31]</sup> [Rudolf trans Danford, 202.](#)
- <sup>[32]</sup> [Rudolf trans Danford, 247.](#)
- <sup>[33]</sup> [Verner, 413-15.](#)
- <sup>[34]</sup> [Satheesan 2000, 171.](#)
- <sup>[35]</sup> [Macpherson, 181-82.](#) One wonders what the Cretans thought the Griffon chicks subsisted on. “Gerber’s Griffon Formula,” perhaps?
- <sup>[36]</sup> [Corona-M., 296.](#)
- <sup>[37]</sup> [Peeters 1994, 776.](#)
- <sup>[38]</sup> [Dawson, 1742.](#)
- <sup>[39]</sup> [Peeters and Peeters, 124-25.](#)
- <sup>[40]</sup> [Kiff, 180.](#)
- <sup>[41]</sup> [Houston 1996, 330.](#)
- <sup>[42]</sup> [Bijleveld, 50.](#)
- <sup>[43]</sup> [Virani et al, 746-50.](#)
- <sup>[44]</sup> [Dawson, 1741.](#)
- <sup>[45]</sup> [Parmalee, 443-52.](#)
- <sup>[46]</sup> [Bijleveld, 12.](#)
- <sup>[47]</sup> [Lodge, 26.](#)
- <sup>[48]</sup> [Baker 1935, 16.](#)
- <sup>[49]</sup> [Bijleveld, 33.](#)
- <sup>[50]</sup> [Baker 1935, 12.](#)

- [\[51\] Verner, 403-04.](#)
- [\[52\] Bree, 17-18.](#)
- [\[53\] Dresser, 408.](#)
- [\[54\] Baker 1935, 22.](#)
- [\[55\] Kiff, 180.](#)
- [\[56\] Bijleveld, 24.](#)
- [\[57\] Bijleveld, 33.](#)
- [\[58\] Sancho, Ruiz, and Leon, 546-47.](#)
- [\[59\] Dresser, 408-09.](#)
- [\[60\] Senner, White, and Parrish, 6.](#)
- [\[61\] Iankov, Khristov, and Avramov, 140.](#)
- [\[62\] Bijleveld, 48-49.](#)
- [\[63\] Tella, 408.](#)
- [\[64\] Olea and Mateo-Tomás, 1851.](#)
- [\[65\] Mason.](#)
- [\[66\] Sage and Tourres.](#)
- [\[67\] Margalida, Campi3n, and Don3azar, 457.](#)
- [\[68\] Wood 2009, and Mason.](#)
- [\[69\] Margalida et al 2012, 284.](#)
- [\[70\] Pain et al 2003, 663.](#)
- [\[71\] Pain et al 2003, 661.](#)
- [\[72\] Pain et al 2003, 662.](#)
- [\[73\] Pain et al 2003, 661.](#)
- [\[74\] Pain et al 2003, 662.](#)
- [\[75\] Voous, 50, and Bijleveld, 74.](#)
- [\[76\] Bijleveld, 64.](#)
- [\[77\] Mundy 2000, 151.](#)
- [\[78\] Mundy 2000, 159.](#)
- [\[79\] Wallace and Temple 1989, 250.](#)
- [\[80\] Bell \(ed.\), 1315.](#)
- [\[81\] de G3mara trans Simpson, 151.](#)
- [\[82\] Bell \(ed.\), 833.](#)
- [\[83\] Bell \(ed.\), 1379.](#)
- [\[84\] Rudolf trans Danford, 452.](#)
- [\[85\] Richardson, Mundy, and Plug, 41.](#)
- [\[86\] Houston 1996, 332.](#)
- [\[87\] Baratay and Hardouin trans Welsh, 137.](#)
- [\[88\] Baratay and Hardouin trans Welsh, 242.](#)
- [\[89\] Loisel, 322.](#)
- [\[90\] Tsuchudi, 34-35.](#)
- [\[91\] Heidenreich trans Oppenheim, 13, 211.](#)
- [\[92\] Fischer, 402, and Negro et al 1999, F14-F15.](#)
- [\[93\] Rudolf trans Danford, 114.](#)
- [\[94\] Rudolf trans Danford, 118.](#)
- [\[95\] Lydekker et al 1897, 275.](#)
- [\[96\] Verner, 388.](#)
- [\[97\] Wetmore, 162.](#)
- [\[98\] Roberts 1932, 296.](#)
- [\[99\] Mouillard, 451.](#)
- [\[100\] Bukharin trans Shriver, 171.](#)
- [\[101\] Bell \(ed.\), 1117-1119.](#)
- [\[102\] Bell \(ed.\), 1400.](#)
- [\[103\] Murphy, 24-25.](#)
- [\[104\] Bell \(ed.\), 975.](#)

- <sup>[105]</sup> [Loisel, 22.](#)
- <sup>[106]</sup> [Brown, Urban, and Newman, 327.](#)
- <sup>[107]</sup> [Houston 1996, 333.](#)
- <sup>[108]</sup> [Stager, 41.](#)
- <sup>[109]</sup> [Brown and Amadon, 192.](#)
- <sup>[110]</sup> [Gailey and Bolwig, 64-65.](#)
- <sup>[111]</sup> [Fischer, 401.](#)
- <sup>[112]</sup> [Smith and Easton, 39-40.](#)
- <sup>[113]</sup> [Card.](#)
- <sup>[114]</sup> [Verner, 388-89.](#)
- <sup>[115]</sup> [Hutton, 113-114.](#)
- <sup>[116]</sup> [Andrews et al, 118.](#)
- <sup>[117]</sup> [Vaurie, 137.](#)
- <sup>[118]</sup> [Crandall, 18-19.](#)
- <sup>[119]</sup> [Goddard \(editor\), 99.](#)
- <sup>[120]</sup> [Beebe, 290.](#)
- <sup>[121]</sup> [Tristram 1867, 178.](#)
- <sup>[122]</sup> [Lawick-Goodall and Lawick-Goodall 1968, 634.](#)
- <sup>[123]</sup> [Rudolf trans Danford, 483-85.](#)
- <sup>[124]</sup> [Finley 1906, 134-42.](#)
- <sup>[125]</sup> [Finley 1908 \(b\), 58-65.](#)
- <sup>[126]</sup> [Mathewson, 87.](#)
- <sup>[127]</sup> [Mathewson, 87.](#)
- <sup>[128]</sup> [Finley 1910, 11.](#)
- <sup>[129]</sup> [Loisel, 159.](#)
- <sup>[130]</sup> [Finley 1910, 4.](#)

<sup>[131]</sup> [Mathewson, 87.](#) If you think that *this* is depressing, consider that according to Finley, another Condor in the same zoo had died of the exact same cause in 1905. Unless feeding rubber bands to zoo animals was a common pastime during the 1900s, one twice-cursed disgrace to humanity was probably responsible for both deaths.

- <sup>[132]</sup> [Bell \(ed.\), 194.](#)
- <sup>[133]</sup> [Snyder and Snyder 2000, 342.](#)
- <sup>[134]</sup> [Peeters and Peeters, 122.](#)
- <sup>[135]</sup> [Peeters and Peeters, 114.](#)
- <sup>[136]</sup> [BirdLife International 2012 \(h\).](#)
- <sup>[137]</sup> [BirdLife International 2012 \(h\).](#)
- <sup>[138]</sup> [Snyder and Snyder 2005, 163.](#)
- <sup>[139]</sup> [Snyder and Snyder 2005, 168-69.](#)
- <sup>[140]</sup> [BirdLife International 2012 \(h\).](#)
- <sup>[141]</sup> [Terrasse et al, 479.](#)
- <sup>[142]</sup> [Sarrazin et al, 854.](#)
- <sup>[143]</sup> [Terrasse et al, 481.](#)
- <sup>[144]</sup> [Terrasse et al, 483.](#)
- <sup>[145]</sup> [Terrasse et al, 479.](#)
- <sup>[146]</sup> [Terrasse et al, 483.](#)
- <sup>[147]</sup> [Sarrazin et al, 857.](#)
- <sup>[148]</sup> [Sarrazin et al, 860.](#)
- <sup>[149]</sup> [Terrasse et al, 486-87.](#)
- <sup>[150]</sup> [Sarrazin et al, 857.](#)
- <sup>[151]</sup> [Terrasse et al, 481, and Sarrazin et al, 860.](#)
- <sup>[152]</sup> [Terrasse et al, 479.](#)
- <sup>[153]</sup> [Terrasse et al, 488, 490.](#)
- <sup>[154]</sup> [Sarrazin et al, 860.](#)
- <sup>[155]</sup> [Frey and Bijleveld van Lexmond, 460-62.](#)



<sup>[156]</sup> No joke; there are at least three documented cases of this happening, with an Andean Condor in Peru ([Snyder and Snyder 2000, 104](#)), and Eurasian Griffons in Saudi Arabia (<http://www.bbc.co.uk/news/world-middle-east-12120259>) and in Sudan ([http://www.cnn.com/2012/12/11/world/meast/israel-vulture-sudan/index.html?hpt=hp\\_t3](http://www.cnn.com/2012/12/11/world/meast/israel-vulture-sudan/index.html?hpt=hp_t3)).

- <sup>[157]</sup> [Schlee, 201.](#)
- <sup>[158]</sup> [Cuesta and Sulbarán, 18-19.](#)
- <sup>[159]</sup> [Birdlife International 2000, 108.](#)
- <sup>[160]</sup> [Pain et al 2003, 661.](#)
- <sup>[161]</sup> [Mundy \(sum\) 1985, 466.](#)
- <sup>[162]</sup> [Mundy \(sum\) 1985, 465.](#)
- <sup>[163]</sup> [Satheesan 1996, 316-21.](#)
- <sup>[164]</sup> [Satheesan 2000, 170.](#)
- <sup>[165]</sup> [Pain et al 2003, 662-64.](#)
- <sup>[166]</sup> [Risebrough, 596-97.](#)
- <sup>[167]</sup> [Ferguson-Lees and Christie, 424.](#)
- <sup>[168]</sup> [Pain et al 2003, 664.](#)
- <sup>[169]</sup> [Risebrough, 596-97.](#)
- <sup>[170]</sup> [Pain et al 2003, 665.](#)
- <sup>[171]</sup> [Pain et al 2003, 666.](#)
- <sup>[172]</sup> [Risebrough, 596-97.](#)
- <sup>[173]</sup> [Pain et al 2003, 665.](#)
- <sup>[174]</sup> [Risebrough, 596-97.](#)
- <sup>[175]</sup> [Risebrough, 596-97.](#)
- <sup>[176]</sup> [Pain et al 2003, 665.](#)
- <sup>[177]</sup> [Pease 2006.](#)
- <sup>[178]</sup> [Oaks et al, 631.](#)
- <sup>[179]</sup> [Oaks et al, 631.](#)
- <sup>[180]</sup> [Risebrough, 596-97.](#)
- <sup>[181]</sup> [Oaks et al, 631-32.](#)
- <sup>[182]</sup> [Oaks et al, 632.](#)
- <sup>[183]</sup> [Oaks et al, 632.](#)
- <sup>[184]</sup> [Oaks et al, 632.](#)
- <sup>[185]</sup> [Risebrough, 597.](#)
- <sup>[186]</sup> [Risebrough, 598.](#)
- <sup>[187]</sup> [Cuthbert et al 2007, 91.](#)
- <sup>[188]</sup> [Rattner et al, 2341-2345.](#)
- <sup>[189]</sup> [Pain et al 2008, S41.](#)
- <sup>[190]</sup> [Subramanian, 37.](#)
- <sup>[191]</sup> [Cuthbert et al 2011, 1483-84.](#)
- <sup>[192]</sup> [Wadia \(a\).](#)
- <sup>[193]</sup> [Pain et al 2008, S38.](#)
- <sup>[194]</sup> [Mundy \(sum\) 1985, 469.](#)
- <sup>[195]</sup> [Olea and Mateo-Tomás, 1845.](#)
- <sup>[196]</sup> [BirdLife International 2012 \(a\).](#)
- <sup>[197]</sup> [Olea and Mateo-Tomás, 1845.](#)
- <sup>[198]</sup> [BirdLife International 2012 \(i\).](#)
- <sup>[199]</sup> [BirdLife International 2012 \(f\).](#)
- <sup>[200]</sup> [BirdLife International 2012 \(g\).](#)
- <sup>[201]</sup> [BirdLife International 2012 \(e\).](#)
- <sup>[202]</sup> [BirdLife International 2012 \(c\).](#)
- <sup>[203]</sup> [Cuthbert et al 2006, 349-53.](#)
- <sup>[204]</sup> [BirdLife International 2012 \(c\).](#)
- <sup>[205]</sup> [Wadia \(b\).](#)
- <sup>[206]</sup> [Pain et al 2003, 668.](#)
- <sup>[207]</sup> [Wadia \(a\).](#)

- [208] [Munshi, 63.](#)
- [209] [Wadia \(b\).](#)
- [210] [Wadia \(a\).](#)
- [211] [Mistree.](#)
- [212] [Munshi, 62.](#)
- [213] [Mistree.](#)
- [214] [Wadia \(a\).](#)
- [215] [Munshi, 58.](#)
- [216] [Subramanian, 38.](#)
- [217] [Xin Lu et al, 170.](#)
- [218] [Wadia \(a\).](#)
- [219] [Subramanian, 38.](#)
- [220] [Munshi, 63.](#)
- [221] [Anonymous \(a\).](#)
- [222] [Markandya et al, 198.](#)
- [223] [Pain et al 2003, 667.](#)
- [224] [Markandya et al, 198.](#)
- [225] [Fox 1984, 133.](#)
- [226] [Markandya et al, 200-01.](#)
- [227] [Pain et al 2003, 669.](#)
- [228] [Pain et al 2003, 668.](#)
- [229] [Pain et al 2003, 667.](#)
- [230] [Markandya et al, 197.](#)
- [231] [Pain et al 2003, 667.](#)
- [232] [Fox 1984, 127.](#)
- [233] [Pain et al 2003, 667.](#)
- [234] [Pain et al 2003, 667.](#)
- [235] [Ogada et al, 458.](#)
- [236] [Ogada et al, 457-58.](#)
- [237] [Singh 2007, 193.](#)
- [238] [Risebrough, 598.](#)
- [239] [Pease, and Mistree.](#)
- [240] [Pain et al 2008, S31, and Kirby.](#)
- [241] [Cuthbert et al 2011, 1483-84.](#)
- [242] [Bombay Natural History Society.](#)
- [243] <http://www.thehindu.com/todays-paper/tp-in-school/article3592716.ece>
- [244] [Pererva and Grazhdankin, 667.](#)
- [245] [Beck, 383-83.](#)
- [246] [Beck, 385.](#)
- [247] [BirdLife International 2012 \(c\) and \(k\).](#)
- [248] [Peeters and Peeters, 114-15.](#)
- [249] [Dawson, 1728.](#)
- [250] [Raine, 251.](#)
- [251] [Molloy, 130-31.](#)
- [252] [Rudolf trans Danford, 478-79.](#)
- [253] [Rudolf trans Danford, 478-79.](#)
- [254] [Brown 1971, 58.](#)
- [255] [Tristram 1885, 95.](#)
- [256] [Byam 1850, 103.](#)
- [257] [Cardenal, 75.](#)
- [258] [Puckett, 49-50.](#)

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V for the VULTURE, a carrion crow, Ugly to look at, this scavenger Low.

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